NOTES

FROM THE

LEYDEN MUSEUM.

NOTES

FROM THE

LEYDEN MUSEUM

EDITED

BY

Prof. H. SCHLEGEL,
Director of the Museum.

VOL. II.

LEYDEN
E. J. BRILL.
1880.

CONTENTS OF VOL. II.

MAMMALIA.

AVES.

INSECTA.

COLEOPTERA.

HYMENOPTERA.

SUCTORIA.

CRUSTACEA.

VERMES.

ECHINODERMATA.

SPONGIDAE.

VOL. II was issued in parts in the following order:

N°. 1 — January 1880, Note I—X.

N°. 2 — April 1880, Note XI—XVIII.

N°. 3 — July 1880, Note XIX—XXX.

N°. 4 — October 1880, Note XXXI—XLI.

NOTE I.

DESCRIPTIONS OF THE NEW ELATERIDAE COLLECTED DURING THE RECENT SCIENTIFIC SUMATRA-EXPEDITION.

BY

Dr. E. CANDEZE.

---

1. *Melanthoides nitidus*, sp. n.

Flavo-testaceus, nitidus, brevissima pubescens; fronte porrecta, concava; prothorace latitudine paulo longiore, sat crebre punctato, basi apiceque coarctato, medio linea impresso, angulis posticis tenuibus, divaricatis, fortiter carinatis; elytris depressis, punctato-striatis, interstitiis convexis. — Long. 13 mm., lat. 3 mm.

Resembling *M. ligneus* Cand. [1]) but smaller and distinctly differing from that species by its lustre.

A single specimen was captured in November 1877 at Doesoen Tengah.

2. *Anchastus spectabilis*, sp. n.

Latus, ovalis, ater, nitidus, nigro-pilosulus; prothorace transverso, tenuiter punctato, miniato, flavo-pubescente, macula apicali nigra, angulis posticis haud divaricatis,

1) *Annales de la Société Entomologique de Belgique.* Tom. XXI (1878) Comptes-Rendus des Séances, p. LXI.

bicarinatis; elytris punctatis, tenuiter striatis; subtus pedibusque, thorace excepto, fuscis. — Long. 6 mm., lat. $2^1/_2$ mm.

The shortness and width of this species, as well as its bright colors, render it very remarkable, and clearly distinct from its congeners.

A single specimen was captured in May 1878 in the district of Rawas.

3. *Melanoxanthus confusus* sp. n.

Brunneus, parum nitidus, brunneo-pubescens; prothorace latitudine paulo longiore, a basi angustato, crebre fortiterque punctato, angulis posticis retrorsum productis, acute bicarinatis, cum margine postico nitido et impunctato, flavescentibus; scutello triangulari, nigro; elytris ultra medium parallelis, punctato-striatis, interstitiis punctatis, confuse testaceo variegatis. — Long. 7 mm,, lat. 2 mm.

This species looks like *M. dolosus* Cand. [1]), *variegatus* Cand. [2]), etc. and must be placed among these.

A single specimen was captured in June 1877 at Silago.

4. *Cardiophorus rubiginosus*, sp. n.

Brunneo-niger, parum nitidus, breviter et incondite flavopilosulus; prothorace longitudine paulo latiore, basi apiceque angustato, inaequaliter punctato, sulcis basalibus brevibus; elytris fortiter punctato-striatis, interstitiis convexis, apice carinatis, disco vage rubiginosis; subtus obscurior, unguiculis dentatis. — Long. 10 mm., lat. $2^1/_2$ mm.

Close to *C. inconditus* Cand. [3]) of the Philippine-islands.

---

1) *Mémoires de l'Académie Royale des Sciences de Belgique.* Tom. XVII (1865). p. 33.

2) E. Candèze, *Monographie des Elatérides.* Tom. II. p. 516, n°. 7.

3) *Annales de la Société Entomologique de Belgique.* Tom. XVIII (1875). Comptes-Rendus des Séances, p. CXXV.

One specimen from Moeara Laboe (November 1877), and two from the district of Rawas (May 1878).

5. *Melanotus hapatesus*, sp. n.

Rufus, nitidus, flavo pilosus; fronte obscura; antennis concoloribus, articulo tertio secundo vix longiore, conjunctis quarto longioribus; prothorace transverso, sparsim punctato, punctis lateribus majoribus umbilicatis, angulis posticis retrorsum productis acute carinatis; elytris punctato-striatis, interstitiis planis punctatis; subtus pedibusque concoloribus. — Long. 7 mm., lat. 2 mm.

Closely allied to *M. carinatus* Cand. [1]) but smaller and of a red color. The new species has the aspect of a dwarf-specimen of *Hapatesus hirtus* Cand. [2]).

A single specimen was captured in May 1878 in the district of Rawas.

6. *Penia stictica*, sp. n.

Flava, flavo-pubescens, disco prothoracis, elytrorum basi suturaque brunnescentibus; prothorace transverso, plano, trapezoideo, subtiliter punctato; elytris seriatim brunneo lineolatis et punctatis; tarsis articulo tertio et quarto lamellatis. — Long. 12 mm., lat. $3^3/_4$ mm.

Three specimens captured in December 1877 on the Peak of Indrapoera, at a height of about 1490 M.

7. *Agonischius lateralis*, sp. n.

Aeneus, subnitidus, cinereo-pilosulus, elytrorum lateribus brunneo pilosulis; antennis nigris; prothorace latitudine longiore, crebre fortiterque punctato, medio canaliculato,

---

1) *Mémoires de l'Académie Royale des Sciences de Belgique.* Tom. XVII (1865). p. 49.

2) E. Candèze, *Monographie des Elatérides.* Tom. IV. p. 188; pl. 2, fig. 8.

angulis posticis gracilibus, divaricatis, obsolete carinatis; elytris punctato-striatis, interstitiis convexis crebre punctatis; abdomine rufescente, pedibus flavis. — Long. 11 mm., lat. $2^1/_4$ mm.

Allied to *A. aeneolus* Cand. [1]) and remarkable for its bicolored pubescence.

A single specimen, captured in October 1877 at Alahan pandjang.

8. *Agonischius fasciatus*, sp. n.

Aeneus, subnitidus, cinereo-pilosulus; antennis valde serratis, nigris; prothorace latitudine longiore, crebre fortiterque punctato, medio canaliculato, angulis posticis divaricatis, obsolete carinatis; elytris punctato-striatis, interstitiis punctatis et convexis, brunneis pilositate brunnea bifasciatis; pedibus flavis. — Long. 11 mm., lat. $2^1/_4$ mm.

General appearance of the foregoing species, but distinct by its bicolored pubescence being arranged in streaks.

A single specimen, captured in October 1877 at Moeara Laboe.

9. *Agonischius bimaculatus*, sp. n.

Brevior, aeneus, nitidus, cinereo-pilosulus; antennis nigris; prothorace latitudine longiore, fortiter punctato, medio canaliculato, angulis posticis obsolete carinatis; elytris punctato-striatis, interstitiis punctatis, basi rufo maculatis; abdomine rufescente, pedibus obscuris. — Long. 9 mm., lat. 2 mm.

This species as well as the two preceding ones must be placed by the side of *A. aeneolus* Cand. [1]).

Two specimens were captured in May 1878 in the district of Rawas.

---

1) E. Candèze, *Monographie des Elatérides*. Tom. IV. p. 417, n°. 13.

10. *Glyphonyx frontalis*, sp. n.

Fuscus, nitidus, griseo-pubescens; fronte rufescente; prothorace subquadrato, convexo, punctato, angulis posticis haud divaricatis, longe carinatis; elytris subtiliter punctato-striatis, interstitiis planis punctatis, apice brunnescentibus; antennis pedibusque rufis. — Long. 5 mm., lat. $1^1/_4$ mm.

Allied to *G. erraticus* Cand. [1]) of the Philippine-islands, but narrower and with a reddish face.

A single specimen was captured in July 1878 at Misauw.

11. *Silesis sanguinolentus*, sp. n.

Nitidus, flavo-pilosus, rufo-sanguineus, fronte apiceque elytrorum nigris; prothorace subquadrato, sparsius medio subtilissime punctato; elytris punctato-substriatis, interstitiis planis; subtus pedibusque concoloribus. — Long. 8 mm., lat. 2 mm.

Three specimens of this species were captured in May 1878 in the district of Rawas.

12. *Parhemiops angustus*, sp. n.

P. palliato similis sed angustior; parallelus, rufus, elytris basi excepto nigris; antennis gracilioribus. — Long. 9 mm., lat. $1^2/_3$ mm.

The very characteristic coloration of the type specimen of this genus [2]) is exactly reproduced in the species here described, which however is notably narrower. I believe it to be a distinct species.

One specimen was captured in March 1877 at Boekit Kandang, another in the following month at Ajer Boesoek.

Glain near Liége, September 1879.

1) *Annales de la Société Entomologique de Belgique.* Tom. XVIII (1875). Comptes-Rendus des Séances, p. CXXVII.

2) *l. c.* Tom. XXI (1878). Comptes-Rendus des Séances, p. CXCVIII.

NOTE II.

A NEW GENUS AND FOUR NEW SPECIES OF ELATERIDAE FROM THE COLLECTIONS OF THE LEYDEN MUSEUM.

BY

Dr. E. CANDÈZE.

---

1. *Psephus seniculus*, sp. n.

Fusco-castaneus, subnitidus, cinereo-pilosulus, fronte convexa, apice parum porrecta; antennis articulis 2 et 3 parvis aequalibus; prothorace latitudine haud longiore, aequaliter convexo, crebre fortiterque punctato, angulis posticis retrorsum productis, brevibus, carinatis; elytris saepe brunnescentibus, tenuiter striato-punctatis, interstitiis planis, transversim subgranulatis; corpore subtus concolore, prosterni mucrone recto. — Long. 11 mm., lat. 3 mm.

Hab. Zanzibar. — The specimens of the Leyden Museum were forwarded from the interior (Marangnombe). My own collection contains several specimens captured by Mr. Schaedle at Bagamoyo.

This species resembles in general aspect *Psephus aeneolus* Cand. [1]) and also to a certain extent *Psephus brevipennis* Cand. [2]). Its essential characteristic is the very short and

1) *Mémoires de l'Académie Royale des Sciences de Belgique.* Tom. XVII (1865). p. 20.

2) E. Candèze, *Monographie des Elatérides.* Tom. II. p. 27, n°. 10.

white pubescence which considerably modifies the brown color of the teguments.

The genus *Psephus* seems to be widely distributed in the intertropical parts of Africa, especially in that zone which belongs to the southern hemisphere, and the collections sent from those regions generally contain a few specimens of different species.

2. *Elius elegans*, sp. n.

Sanguineus, nitidus parce fulvo-pilosulus; fronte fortiter punctata, apice arcuata, porrecta; antennis nigris, basi rufis, articulis 2 et 3 minutis aequalibus, sequentibus hirsutis; prothorace latitudine breviore, a basi angustato, sparsim tenuiter punctato, angulis posticis vix divaricatis, acute carinatis; elytris nigerrimis, striato-punctatis, punctis profundis; corpore subtus crebe punctato, sanguineo, pedibus concoloribus. — Long. 6 mm., lat. $1^1/_2$ mm.

Hab. Borneo.

When lately described a new genus (*Sephilus*) from Malacca, belonging to the tribe of the Dicrepidiites, I expressed the opinion that the Indian Elateridae of this tribe required revision as their number is gradually increasing (*Annali del Museo Civico di Storia naturale di Genoa.* vol. XII. p. 109). So for example the genus *Elius*, which was founded on a species from Southern Hindostan, now-a-days counts no less than six species and there is no doubt that their number will yet increase considerably, for though the individuals representing these species may be rare, they seem on the contrary to range over a vast tract in the hottest regions of India. The consequence is that the characteristics which were originally established for the genus will have to be somewhat modified in order to allow the introduction of those species which afterwards have been grouped round the original type.

The *Elius* seem to represent in the old continent, or at least in the Indies, the American *Anoplischius*.

Telesus, g. n.

Frons antice carinata, truncata, lamina reflexa biimpressa, margine angulata; labrum minutum, rotundatum; palporum articulus ultimus triangularis.

Antennae breves, articulis carinatis.

Prosterni suturae laterales rectae, haud canaliculatae.

Mesosterni fossula oblonga, marginibus depressis.

Coxarum posticarum laminae intus rectangulariter dilatatae, extus subito angustatae.

Pedes normalis, tarsorum articulus quartus dilatatus et lobatus, quintus brevis, unguibus minutis terminatus.

This genus must take its place in the tribe of the Monocrepidiites.

The genus *Monocrepidius*, the type of this tribe, has been established for a group of very numerous insects which have however certain constant characteristics making the genus a very natural one. These characteristics consist in the structure of the fourth joint of the tarsi which is sometimes dilated and always provided with an inferior foliate appendix, in the protruding shape of the front, the straightness of the prosternal sutures, and the semicircular dilatation of the coxal laminae.

The new genus here proposed presents all these characteristics but with important modifications. Thus the front is protruding but that part which is bent towards the labrum is shaped quite differently from the genus *Monocrepidius:* it is large and provided with two foveola; the coxal laminae are dilated on the inner side, but have a square instead of a curvilinear shape; the fifth joint of the tarsi is proportionally shorter and the claws remarkably small. It is, in short, a very curious modification of the type *Monocrepidius*.

The new generic division is interesting because it represents the *Monocrepidius* in Africa. The latter are numerous in North and South America, in Asia and in Australia, but in Europe and Africa they are totally wanting.

Up to this time the present genus contains only the following species:

3. *Telesus Ritsemae*, sp. n.

Castaneus, parum nitidus, breviter albo-pilosulus; fronte crebre punctata, biimpressa; prothorace tumido, latitudine longiore, aequali, crebre punctato, angulis posticis brevibus, acutis, carinatis; elytris parallelis, striis subtilibus parum distincte punctatis, interstitiis planis subgranulatis; pedibus brunneis. — Long. 12 mm., lat. fere 3 mm.

One specimen found at Chimfimo (Chinfino), a factory which is situated on the southern bank of the river Kacongo, north of the river Zaïre or Congo (South West Africa).

4. *Agonischius ornatus*, sp. n.

Niger, nitidus, nigro-pilosulus; fronte crebre et profunde punctato; antennis articulis 4—9 gradatius dilatatis; prothorace transverso, parce tenuiter punctato, corallino, basi apiceque medio nigro-marginata; elytris striato-punctatis, interstitiis parce punctulatis, cyaneo-nigris, vitta brevi scutellari, alteraque marginali abbreviata luteis. — Long. 7 mm., lat. 2 mm.

Hab. Andaï (New-Guinea). — One specimen discovered by Mr. C. B. H. von Rosenberg.

This pretty species is easily recognizable and sufficiently characterized by its varied coloration. Its place must be among the species with broad antennae near the *Agonischius mirus* Cand. [1]).

Glain near Liége, October 1879.

1) E. Candèze, *Monographie des Elatérides*. Tom. IV. p. 412, n°. 3

NOTE III.

A CELEBIAN MOUSE RENAMED,

BY

Dr. F. A. JENTINK.

Nov. 1879.

After having examined Gray's type of *Acanthomys leucopus* [1]) and compared that animal with my description of *Mus leucopus* [2]), Alston comes to the conclusion [3]), "that I have been misled by Gray's very insufficient description". I am the first to agree with Alston in this statement. I am much indebted to Mr. Alston for his minute description of the *Mus* in question, s. n. *Mus terrae-reginae.*

If I had known that Gray's *leucopus* has the tail shorter than head and body and the fur above *dark reddish*- and not *greyish*-brown, I should certainly not have made a mistake in confounding these two distinct species. But I believe it quite impossible to recognize species if they are described so incompletely and inexactly as is the case with the greater part of Gray's descriptions.

So I am now in the painful necessity to rebaptize my Celebian Mouse and Mr. S. C. J. W. van Musschenbroek proposes to give it the specific name of *beccarii* (for description see Notes from the Leyden Museum, 1879, p. 8).

However I cannot conceive why the specific identity

1) P. Z. S. L. 1867. p. 598.
2) Notes from the Leyden Museum, 1879. p. 8.
3) P. Z. S. L. 1879. p. 645.

of a *Mus* from Celebes with one from the continent of Australia seems to Mr. Alston so unlikely. All naturalists are acquainted with the fact that some Mice-species have a nearly unlimited area of distribution, so for instance *Mus rattus*, *decumanus*, *musculus*, etc. are to be found in nearly all the parts of the world, having generally been transported by vessels. Moreover I have seen a specimen of the very beautiful *Echiothrix leucura* Gray, captured in North Celebes, whereas the type specimen described by Gray [1]) inhabits Australia. I have also before me a Mouse from Wonoembai (Arou-Islands), brought home by Mr. v. Rosenberg and agreeing in all parts with the Australian *Mus terrae-reginae* Alston, only a little smaller in all dimensions.

P. S. Mr. van Musschenbroek writes me "I propose you to name this species after my friend Dr. Odoardo Beccari, the highly gifted naturalist who, after many other scientifical travels, made our Indian Archipelago the field of his explorations and penetrating to the most unknown and remote parts of these beautiful regions, obtained such great results for both their Fauna and Flora."

1) P. Z. S. L. 1867. p. 599. If at least Gray's description and locality are exact, for I have not seen the type specimen in the British Museum.

NOTE IV.

ON SOME HITHERTO UNDESCRIBED SPECIES OF MUS IN THE LEYDEN MUSEUM.

BY

Dr. F. A. JENTINK.

November 1879.

I. With spinous hairs.

1. *Mus diardii*, n. sp.

Fur composed of three kinds of hairs: 1°. woolly hairs, slate-colored near the base and for the rest rusty; 2°. spinous hairs, very narrow and flexible, white near the base, dusky brown towards the tip; and 3°. longer bristles, brown colored. Underparts covered only with woolly hairs, slate-colored near the base and for the rest yellowish rusty.

Tail shorter than head and body, with short brown hairs. Ears rather short, rounded. Whiskers as long as to reach the tips of the ears, black.

Hind-foot very short, thumb and fifth toe extraordinarily short, the middle toes of the same length. The rudimentary thumb of the fore-foot with a flat nail. Claws rather small, white. Cutting-teeth transparent, brownish orange, the lower ones are yellower.

One specimen.

	m. m.
Head and body.	218
Tail	178
Ear.	18
Hind foot	34
Length upper molar series	6.5
Distance between incisor and first upper molar.	12
Distance between incisor and first lower molar.	6

Hab. West Java (Diard).

2. *Mus neglectus*, n. sp.

Upper-parts glistening blackish brown, sprinkled with yellow. Woolly hairs slate-colored black tipped, with a rather broad yellow ring; brown bristles project here and there; narrow flexible spinous hairs, white, brown tipped, are spread on the back. Muzzle, lips, throat, chest, belly, inside of legs and anus yellowish, the hairs being slate-colored with long yellow tips.

Ears short, broad, rounded. Thumb of hind foot rather short, with a small claw, that of the fore-foot as in the other species of Mice. Claws brown. Cutting-teeth orange. Whiskers short, black.

Two specimens (the following measures are those of the Bornean specimen).

	m. m.
Head and body.	225
Tail . . . . . incomplete.	
Ear	18
Hind foot	37
Length upper molar series	7
Distance between incisor and first upper molar.	12
Distance between incisor and first lower molar.	6

Hab. Borneo, Banjer-Massing (S. Müller) and Batjan (Bernstein).

3. *Mus ephippium*, n. sp.

All the woolly hairs are slate-colored near the base, those of the upperparts having dusky brown tips, the other ones bright yellow tips, but on the fore-back they are entirely bright yellow. There are but a few brown colored bristles; more frequent are the spinous hairs on the back, brownish near the base, dark brown tipped.

Numerous whiskers, dusky, rather short. Ears rather short, rounded. Tail much shorter than head and body, very hairy. Hind foot small; thumb and fourth toe attached rather high up: the two middle toes of the same size: the very little thumb of the fore-foot is armed with a small nail: the two middle fingers are of the same size. Claws rusty. Upper cutting-teeth orange, lower ones yellowish.

One specimen.

	m. m.
Head and body	140
Tail	110
Ear	12
Hind foot	24
Length upper molar series	4.5
Distance between incisor and first upper molar.	9
» » » » » lower »	4

Hab. Sumatra.

This hitherto undescribed species was labeled *ephippium* by Temminck.

4. *Mus jessook*, n. sp.

n. i. jessook or jêsuk.

Above chestnut, underparts white. Hairs soft to the touch, slate-colored near the base. Here and there are some longer white flexible spinous hairs, a few of which are tipped with chestnut. Lips, chin, cheeks, throat, chest, belly, anus and inside of legs, white.

Tail nearly as long as head and body, brown, with

scarce hairs and with a little tuft. Ears rather long.

Thumb of the fore-foot very short, implanted higher up than usually. The thumbs of the hind-feet and the fourth toes of fore-feet and hind-feet are remarkably short. In the latter the three middle toes are of the same length.

The distance between incisor and first upper molar is very large. Upper cutting-teeth orange, the lower ones of a brighter yellow color.

Two specimens.

	m. m.
Head and body	148
Tail	136
Ear	15
Hind foot	27
Length upper molar series	6
Distance between incisor and first upper molar.	9
» » » » » lower »	4.5

Hab. New Hebrides, Tana.

II. Without spinous hairs.

5. *Mus mülleri*, n. sp.

Fur very soft, slate-colored near the base. The hairs of back, sides of the body, upperparts of head and outside of legs, with brown tips, the underparts of the body with white tips. Bristles long, rather stiff, brown. Ears small, rounded at the tip.

Tail longer than head and body, covered with very scarce, short, bright colored hairs, somewhat harsh to the touch.

Whiskers very short, brown. Hind-foot extraordinarily

long and strong. There are five toes on the hind-foot; four well developed fingers on the fore-foot, with a very short thumb, armed with a little claw. The two middle fingers of the fore-foot are nearly of the same length. Claws dirty yellow. Upper and lower molars very large and strong. Distance between incisor and first lower molar extraordinarily large. Upper cutting-teeth orange, lower ones brighter colored.

One specimen.

	m. m.
Head and body	203
Tail	227
Ear	17
Hind foot	44
Length upper molar series	10
Distance between incisor and first upper molar.	12
» » » » » lower »	7

Hab. Sumatra, Batang Singalan (S. Müller).

6. *Mus lepturus*, n. sp.

Fur woolly and very long. Woolly hairs of upperparts of head, back, sides of the body and outside of legs slate-colored near the base, brown tipped. Here and there longer black bristles are interspersed. The hairs of the lower-parts of the cheeks, chin, breast, belly and inside of legs are of a pure white.

Tail much longer than head and body, with very scarce hairs, especially near the root. End of tail with a small tuft. Ears very elongate, rounded at the tip. Whiskers project beyond the tips of the ears; they are dark brown and bright tipped.

Hind-foot rather long, thumb and fourth toe very short. The thumb of the fore-foot is also very short, and armed with a small nail: the two middle fingers of the same length.

Claws brown. Cutting-teeth bright yellow. The distance

between the incisor and the first lower molar is remarkably narrow.

One specimen.

	m. m.
Head and body	135
Tail	178
Ear	17
Hind foot	26
Length upper molar series	6
Distance between incisor and first upper molar.	8
» » » » » lower »	4

Hab. Java.

This very interesting new mouse was labeled *lepturus* by Temminck.

7. *Mus ruber*, n. sp.

Hairs soft and very short. General color rusty brown. The hairs of the back and head are greyish brown at the base; those of the belly and sides of the body being slate-colored at the base, rusty brown towards the tip.

Tail very short, much shorter than head and body, covered with very short scarce hairs.

Whiskers dark brown at the base, lighter towards the tip, projecting beyond the tips of the ears.

The four fingers of the fore-foot are well developed, thumb very short, with a flat nail. Hind-foot with five toes. Claws rusty brown. Ears elongated, rather short, rounded.

Upper cutting-teeth of an orange color, lower ones yellowish.

One specimen.

	m. m.
Head and body	214
Tail	140
Ear	18
Hind foot	37
Length upper molar series	7

	m. m.
Distance between incisor and first upper molar.	12.5
» » » » » lower »	7

Hab. New-Guinea, Doreh (von Rosenberg).

At first sight this species resembles *Mus neglectus*, mihi, but is at once distinguished by its very soft hairs, without any trace of flexible spines.

NOTE V.

ON SOME SPECIES OF THE GENUS SESARMA SAY AND CARDISOMA LATR.

BY

J. G. DE MAN.

I. Sesarma Say.

1. *Sesarma gracilipes*, M. Edw.

Milne Edwards, Observ. sur la classification des crust., in Annal. des sciences natur: III Série, t. XX, 1853, p. 182. — Heller, Novara-Reise, Crustacea, pag. 65.

The Museum contains two specimens (1 ♂, 1 ♀) of this small species.

The female specimen is a little larger than the male.

Breadth of carapace of the female 19 mm., length 17 mm.

Breadth of carapace of the male 15 mm., length 13½ mm.

Carapace a little convex, somewhat narrowing anteriorly, with a few distinct regions; upper surface somewhat rugose anteriorly and everywhere very minutely punctate. Behind the acute external orbital tooth, there are still traces of two very rudimentary teeth. Front narrow, a little less broad than half the width of the anterior part of the carapace, vertically deflexed, with a nearly straight, very slightly emarginated anterior margin. Postfrontal lobes abrupt, sharp, the median lobes broader than the external. Anterior legs equal, larger in the male than in the female;

inferior margin of the arm a little dentate, upper margin entire; upper surface of the wrist granulated, inner angle not toothed; hands swollen up, with a large tubercle on the granulated external surface; upper surface with an external marginal ridge and several abrupt short ridges more internally; inner surface also a little granulated, upper margin of the mobile finger provided with numerous minute teeth. Ambulatory legs very slender, especially the meropodites; the three last joints, especially the slender dactylopodites, somewhat hairy. Penultimate joint of the male abdomen more broad than long. These specimens have been collected by Mr. von Rosenberg at Andai in New-Guinea.

The Museum contains still another specimen, collected at Amboina, a male, somewhat smaller than the preceding ones. This specimen agrees completely with the described forms, but the small teeth behind the external orbital angle are more distinctly developed; the front, though as narrow with regard to the breadth of the carapace, is however deeper in proportion to its breadth and has a convex anterior margin. I think this specimen to be only a variety of *Sesarma gracilipes*.

Width of the carapace $12^1/_2$ mm., length 11 mm.

2. 3. *Sesarma picta* de Haan and *Sesarma affinis* de Haan.

De Haan, Fauna Japonica, Crustacea, pag. 61 and 66. Milne Edwards, l. c. pag. 183 and 184. Hilgendorf, in »Baron von der Decken's Reisen in Ost-Afrika", Crustac. pag. 90.

Mr. Hilgendorf thinks these species not only to be identical with one another, but also with *Sesarma quadrata* Fabr.; it may be possible that either of them may be identical with the *Ses. quadrata*, though I think it improbable, but the two Japanese species are certainly different. *Sesarma picta* de Haan has a quadrate carapace, *as broad anteriorly as posteriorly, with parallel, nearly straight lateral margins; front*

half as broad as the carapace; the penultimate joint of the male abdomen much broader than long, and the terminal joint scarcely half as broad as the preceding. In *both* species the distal end of the inferior margin of the arm is armed with a spine, but this spine is somewhat more distinct in *Ses. affinis*. Upper margin of the mobile finger provided with fifteen transverse oval tubercles.

Sesarma affinis de Haan, on the contrary, has a more convex carapace, *broader anteriorly than posteriorly; lateral margins not being parallel, but converging backwards to one another; front broader than half the space between the two external orbital teeth*; the penultimate joint of the male abdomen less enlarged, though being also more broad than long; and the terminal joint half as broad as the preceding. Upper margin of the mobile finger provided with seven circular tubercles. Meropodites of the ambulatory legs more enlarged than those of *Ses. picta*. Both species therefore may also be distinguished, besides by the characters given by Mr. de Haan, at first sight *by the quite different shape of the carapaces*.

Breadth of carapace of *Sesarma picta* (♂) 23 mm., length 19 mm.

Breadth of carapace of *Sesarma affinis* (♂) 25 mm., length 19 mm.

4. *Sesarma eydouxi*, M. Edw.

Milne Edwards, l. c. pag. 184. Heller, l. c. pag. 64.

There are three male specimens in the Museum, of which it is unknown, where they have been collected.

Body tolerably thick; carapace of the largest specimen 33 mm. broad, and 27 mm. long, with a little convex surface and tolerable distinct regions; these are a little rugose and covered with small tufts of hair.

Front nearly vertically deflexed, with passably deep median sinus; four little prominent postfrontal lobes, of which the median ones are scarcely broader than the two external. There is still a trace of a second tooth behind the

external orbital angle; branchial regions with several oblique lines. Anterior legs equal in size; arm with a little developed tooth at the distal end of its upper margin, lower margin somewhat toothed. Outer surface of the wrist rugose and granulated, with a tolerably sharp spine at the inner angle. Outer surface of the hands smooth, with a minutely denticulated marginal ridge on the upper margin and a little distinct small smooth ridge on the middle of the external surface; inner surface of the hands granulated. Upper margin of the mobile finger with 12—15 obtuse spiniform tubercles. Ambulatory legs short and broad, with very enlarged meropodites. Penultimate abdominal joint of the male much more broad than long.

5. *Sesarma rotundifrons* Alph. M. Edw.

Alph. Milne Edwards, Nouv. Arch. du Mus. t. V. Bulletin, pag. 30.

A male specimen, collected at the island of Xulla-Bessy and a female found by Messrs. Pollen and van Dam at the island of Nossi-Bé, near Madagascar.

Description of the male Xulla-Bessy specimen:

Carapace more broad than long, *very convex* longitudinally, regions little distinct, separated by shallow grooves; postfrontal lobes rounded, scarcely prominent, the front not being covered by them when looked at from above. Front nearly vertically deflexed with two obtuse lobes, separated by a wide median sinus; internal orbital angles sharp, acuminate. Numerous transverse tufts of hair upon the anterior part of the surface of the carapace; branchial regions also a little hairy. Carapace somewhat broader anteriorly than posteriorly; the lateral margins a little arched; behind the acute external orbital angle another second prominent tooth. Penultimate joint of the abdomen rather more long than broad. Anterior legs almost equal in size; upper margin of the arm entire, without tooth; lower margin arched and subtilly denticulate. Outer surface of

the arm rugose. Upper surface of the wrist granulated, internal angle obtuse without a tooth. Hands with punctate external surface, upper margin rounded without elevated ridges or lines; upper margin of the mobile finger covered with numerous small granules; internal surface of the hands granular, without granulated ridges. Ambulatory legs very short, with tolerably enlarged meropodites and closely hairy terminal joints.

Breadth of the carapace 35 mm., length 29 mm.

The female specimen, described by Mr. Hoffmann (Crustacés de Madagascar, pag. 23) as belonging to *Sesarma tetragona* Fabr., agrees almost entirely with the Xulla-Bessy specimen; but the upper surface of the carapace is somewhat less hairy, the hands a little smaller and unequal, the right one being larger; the interior surface presents a granulated ridge, which however seems not to be constantly present in all individuals, according to Mr. Hoffmann.

This species is certainly *nearly allied* to *Sesarma tetragona* M. Edw. (Nouv. Arch. du Mus. t. IX, pag. 304), *but the carapace is comparatively broader, more convex and the postfrontal lobes are more rounded and less prominent.* For the rest it were to be wished that Mr. Alph. Milne Edwards had described this species a little more extensively, for in that case it would have been possible to state more differences between these two *Sesarmae*.

6. *Sesarma intermedia*, de Haan.

De Haan, Fauna Japonica, Crust. pag. 61, pl. XVI, fig. 5. — Milne Edwards, l. c. pag. 186.

This species is closely allied to *Sesarma tetragona* M. Edw. (Nouv. Arch. du Mus. t. IX, pag. 304), but may be distinguished by the following characters. There is a slight trace of a third tooth behind the epibranchial tooth of the lateral margins of the rather little convex carapace. The regions are defined by rather shallow grooves, the

postfrontal lobes are little prominent, and do not hide the front, the anterior margin of which is deeply emarginate. The penultimate joint of the abdomen of the male is more broad than long. Outer surface of the hands a little granular; for the rest the anterior legs, like the ambulatory ones, seem to resemble very much those of *Sesarma tetragona*.

The Museum is also in possession of a male specimen of another *Sesarma*, from Japan, that agrees almost entirely with *Sesarma intermedia*, but differs by a *comparatively broader and more convex carapace*, and by a less emarginated front. The rounded postfrontal lobes are also a little more prominent. Perhaps this specimen belongs to *Sesarma sinensis* M. Edw., but the description of this species is so extremely short, that it is quite *impossible* to identify this form. The breadth of carapace of this specimen is 28 mm., the length 23 mm.

7. *Sesarma taeniolata*, White.

White, List Crust. Brit. Mus. p. 38. (1847). Miers, On some Crustaceans from Duke- of- York Island, in Proc. Zool. Soc. 1877, pag. 137, note. Synon: *Grapsus, Pachysoma, fascicularis* de Haan (nec Herbst), and *Grapsus, Pachysoma, tetragonus* de Haan (nec Milne Edwards), Fauna Japon. Crust. pag. 61.

Body tolerably thick, carapace quadrate, rather little convex in the male, a little more in the female, with rather parallel, nearly straight lateral margins; there is a second, somewhat smaller tooth behind the acute external orbital angle. Front nearly vertically deflexed, the anterior margin sinuated, the median sinus wide; postfrontal lobes four, rather little prominent, the external a little smaller than the median ones; the groove defining the gastric region deep; the whole surface of the carapace, especially anteriorly, closely covered with small tufts of hair. Penultimate joint of the male abdomen much more broad than long,

the last joint not half the width of the preceding. Anterior legs robust, those of the male much larger than of the female, equal in size; arm with a very strong tooth near the distal extremity of its upper margin; lower margin somewhat denticulated; carpopodite closely covered with granules or small tubercles, with granulated internal margin, but not toothed. Outer surface of the hands granulated, with a slight granular line rather on the middle; outer surface of the fingers almost smooth; upper margin of the hands with a longitudinal, comb-like, closely pectinated ridge; mobile finger with a longitudinal ridge on its upper surface with about fifty to sixty transverse striae; inner surface of the hands with a very prominent, very granulated crest. Ambulatory legs short, coarse, with rather much enlarged meropodites and slightly hairy.

Breadth of carapace of the male 40 mm., length 36 mm.

Breadth of carapace of the female 37 mm., length 32 mm.

According to our authentic specimens from Java, this species was considered by de Haan to belong to *Sesarma fascicularis* Herbst or *Sesarma tetragona* Fabr. According to Mr. Hilgendorf however, these species are quite different, *Sesarma fascicularis* Herbst being distinguished at first sight by the nine tubercles on the upper margin of the mobile finger; *Sesarma tetragona* M. Edw., according to the description, given by Mr. Alph. Milne Edwards (Nouv. Arch. t. IX, p. 304), differs by the want of ridges on the upper surface of the hands, by the upper margin of the mobile finger not being provided with a subtilly striated longitudinal ridge, by the absence of a spine at the distal end of the upper margin of the arm, by the shape of the penultimate joint of the male abdomen etc.

Our specimens of *Sesarma taeniolata*, which have been collecte dat the island of Celebes, agree also *entirely* with the description given by Mr. Miers, except that of the carapace which he says is *very* convex; the difference is however merely subjective; nor makes he mention of the carapace being covered with tufts of hair.

8. *Sesarma bocourti*, Alph. M. Edw.

Alph. Milne Edwards, Nouv. Arch. du Mus. t. V. Bullet. p. 28.

Though Mr. Milne Edwards's description is again very short and imperfect, I will however refer a specimen of our collection to this species. Moreover I will give a more extensive description of it. Our specimen, a male, has a rather regular tolerably convex carapace, which is somewhat hairy and covered, at least anteriorly, with oblique wrinkles; the branchial regions also are a little covered with small hairs. The lateral margins are parallel and the regions are defined by rather deep grooves. Front vertically deflexed with a slightly emarginate anterior margin. Postfrontal lobes tolerably prominent and sharp, not rounded, the external ones being but a little narrower than the median ones. There is another second smaller tooth behind the external orbital angle. Penultimate joint of the abdomen more broad than long; the sides of the abdomen being rather a little convex. Anterior legs very characteristical: the upper margin of the arm without a spine at its distal end, the inner margin toothed and the outer surface rugose; upper surface of the wrist granulated, its inner margin not being denticulate; *hands very high, compressed and distorted*, their outer surface being *concave* with a rather sharp granulated lower margin; the whole outer and inner surface of the hands and of the mobile finger closely granulated, the inner surface without a granulated ridge. Ambulatory legs short, with tolerably enlarged meropodites, the last joints but little hairy.

Breadth of carapace 24 mm., length 21 mm.

Our specimen was collected at the island of Borneo, that of Milne Edwards at Bangkok (Siam).

9. *Sesarma bidens*, de Haan.

Grapsus, *Pachysoma*, *bidens* de Haan, Fauna Japon.

Crust. p. 60. Milne Edwards, l. c. pag. 185. Heller, Novara-Reise, p. 64. — Hilgendorf, l. c. pag. 91.

The Museum contains, besides the types described by Mr. de Haan, a fine series of specimens, collected at Amboina; these specimens agree almost entirely with the Japanese types, but the first joint of the male abdomen is higher (longer) in the type than in the Amboina specimens, the two first joints being about equally short in these Indian samples.

This species is distributed throughout the Indo-Pacific region, being also found at Zanzibar (Hilgendorf).

10. *Sesarma africana*, M. Edw.

Milne Edwards, l. c. pag. 185. Herklots, Addit. ad Faun. Afr. occ. pag. 9.

This species resembles in some degree the Indian *Sesarma rotundifrons* Edw., but the antero-lateral margins of the less enlarged, more quadrate carapace are nearly parallel and are provided with a very rudimentary tooth behind the epibranchial one; the penultimate joint of the male abdomen is much more *broad than long*, in *rotundifrons* rather more long than broad. Upper surface of the hands of the male with a feeble, minutely pectinated line, inner surface with a prominent, very granulated ridge, upper margin of the mobile finger provided with 18—20 rather large tubercles; upper margin of the arm at the distal end with a sharp spine, which is not found in *S. rotundifrons*, the anterior margin of the wrist more denticulate.

11. *Sesarma smithii*, M. Edw.

Milne Edwards, Arch. du Mus. t. VII. pag. 149. Alph. Milne Edwards, Nouv. Arch. du Mus. t. IX, pag. 305.

There are specimens in our collection from Java, Tondano and Nossi-Faly (near Madagascar).

The Java specimen, a male, has a carapace of 37 mm.

in breadth; tufts of hair large and numerous, especially on the anterior part of the carapace; upper margin of the mobile finger with three black spines, the hindermost being rudimentary.

The specimen from Nossy-Faly, a female, 24 mm. broad, has the carapace nearly without tufts of hair.

The terminal joint of the abdomen of young female specimens is comparatively less profoundly pushed into the preceding than that of adult specimens.

12. *Sesarma* (*Holometopus*) *aubryi*, Alph. M. Edw.

Alph. Milne Edwards, Nouv. Arch. du mus. t. V. Bull. pag. 29 and t. IX, pag. 307. Miers, Proc. Zool. Soc. 1877, pag. 137.

There is a very fine adult male specimen in the collection, found at Amboina. To what has been mentioned by Messrs. Milne Edwards and Miers, about this species we wish to add that —

Though the carapace is generally smooth, the swollen epibranchial regions are a little rugose and obliquely wrinkled; the front is nearly vertical and granulated, comparatively higher than that of *Ses. Holomet. haematocheir* de Haan, with an entire arched anterior margin; in the Japanese species this margin is straight and a little reflexed upwards. The lateral margins of the carapace end about above the third pair of legs in *Ses. aubryi*, but in the other species above the fourth pair. Anterior margin of the arm of the anterior legs entire; in *Ses. haematocheir* it is delicately toothed. In the latter species the upper margin of the meropodites of the ambulatory legs is provided with a small sharp spine near its distal end, which is not found in *Ses. aubryi*. Finally the penultimate joint of the male abdomen of *Ses. aubryi* is comparatively broader and less high than that of *Ses. haemato-*

cheir, the sides of the abdomen being less distinctly concave, as has been said already by Mr. Miers.

Breadth of carapace 24 mm., length 21 mm.

13. *Sesarma violacea*, Herklots.

Herklots, l. c. pag. 10. Milne Edwards, l. c. pag. 190.

This species is identical with *Metagrapsus curvatus* M. Edw., (Milne Edwards, Arch. du mus. t. VII, pag. 160, pl. X, fig. 3).

Mr. Herklots did not describe the structure of the external maxillipeds, nor the form of the female abdomen. This may have been the reason, why Milne Edwards could not determine the position of this species in his system; — the type, described by Mr. Herklots, agrees however entirely with the description of *Metagrapsus curvatus* M. Edw. According to Mr. Milne Edwards, this species inhabits the Senegal, our specimens being collected at Boutry and at Saccondi.

14. *Metagrapsus punctatus*, Alph. M. Edw.

Alph. Milne Edwards, Nouv. Arch. du Mus. t. IX, pag. 308, pl. XVII, fig. 2.

Our collection contains one almost adult male specimen from Padang; breadth of the carapace $26^1/_2$ mm., length $20^1/_2$. This specimen agrees almost entirely with the description of the New-Caledonian type, but the meropodites of the ambulatory legs seem to be a little less slender and comparatively broader than those which are figured in the »Archives".

II. Cardisoma Latr.

15. *Cardisoma carnifex*, Herbst.

Herbst, Krabbe und Krebse, pl. XLI, fig. 1. Milne Edwards, l. c. pag. 204.

The Museum contains specimens of this beautiful crab from Madagascar, Java and Xulla-Bessy, which agree entirely with one another; according to Mr. Heller (Novara-Reise) it occurs also at the Nicobar islands and Mr. Alph. Milne Edwards has described specimens from New-Caledonia, so that it is evident that its range extends over the whole Indo-Pacific region.

Carapace more broad than long, very convex longitudinally; lateral margins defined by a distinct arched marginal line, which is continued tolerably far backward beyond the very small epibranchial tooth; the latter being placed at a very short distance behind the external orbital angle. Branchial regions rather little swollen up. Orbits large, transverse, *twice as broad as high*, almost as broad as the front; the inferior external orbital angle almost right and rounded. The internal suborbital lobe that separates the external antennae from the front, triangular and acuminate. The first joint of the external antennae *enlarged*, with the summit emarginate for the insertion of the other joints. Lower lateral surfaces of the carapace wrinkled. Anterior legs unequal, either the right or the left being larger; the hand of the larger leg scarcely as long as the width of the carapace; outer margin of the arms granulated. — Upper margin of the meropodites of the ambulatory legs armed with a small spine at the distal end.

16. *Cardisoma armatum*, Herklots.

Herklots, Addit. ad Faun. etc. pag. 7.

This species is closely allied to *Cardisoma carnifex* Herbst and may only be distinguished, except by the very characteristic anterior legs, by the fact that the orbits, though most resembling those of *carnifex*, are a little higher in proportion to the breadth. Carapace longitudinally convex, branchial regions very little swollen, the raised line, defining the lateral margins, very distinct. The size and situation of the epibranchial tooth, the form

of the first joint of the external antennae and the shape of the internal suborbital lobe that separates the antennae from the front, agree entirely with the same parts of *C. carnifex*. Anterior legs unequal, hand of the larger leg almost as long as the breadth of the carapace. Lower and outer margins of the arm armed with numerous teeth, upper margin transversely wrinkled. Upper surface of the wrist, as also upper and lower surface of the hand granulated; external surface of the hand a little granular. In the same manner the upper margin of the mobile finger and the lower margin of the index are provided with numerous granules. Ambulatory legs wholly resembling those of *C. carnifex* Herbst.

17. *Cardisoma urvillei*, M. Edw.

Milne Edwards, l. c. pag. 304.

A very fine male specimen was collected by Mr. Forsten in the Moluccas.

This species is also closely allied to *Cardisoma carnifex*, but differs by the following characteristics: Carapace comparatively a little broader with *very tumid* branchial regions, *no trace of a raised line defining the antero-lateral margins*. Orbits transverse, as broad as the front, but *comparatively higher* than those of *C. carnifex*, though having the same shape. The internal suborbital lobe and the first joint of the external antennae having a striking resemblance to the same parts of the common species. Anterior legs unequal, the left being larger; the hand of the larger leg *much longer* than the breadth of the carapace. External and internal surfaces of the hands quite smooth; fingers curved, especially those of the large hand, so that, when closed, they do not rest upon each other, somewhat granulated at their ends. For the rest this species agrees entirely with *Card. carnifex*.

Breadth of carapace (the swollen lateral parts of the body included) 90 mm., length 67 mm. Length of the hand of the larger leg 110 mm.

18. *Cardisoma hirtipes*, Dana.

Milne Edwards, l. c. pag. 205.

The Museum contains many beautiful specimens from the islands of Amboina, Ternate and Morotai.

This species differs in many regards from *Cardisoma carnifex* Herbst and the allied forms (*Cardis. urvillei* M. Edw. and *Cardis. armatum* Herklots) and may be characterised in this manner —

Carapace but little more broad than long, convex longitudinally; with rather little tumid branchial regions; lateral margins defined by a very distinct and arched raised line, which is continued but at a short distance beyond the middle of the lateral margins. Lateral surfaces of the carapace provided posteriorly with numerous oblique lines. Postfrontal lobes more prominent than those of *Cardis. carnifex*. Anterior part of the carapace behind the orbits near the raised lateral lines a little granulated. *Epibranchial tooth very small, situated at a relatively greater distance behind the external orbital angle than in the former species.* Orbits *rather little prolongated transversely, less broad than the front and comparatively higher than those of Cardis. carnifex* Herbst. Inferior external orbital angle *acute, directed backward.* First joint of the external antennae *about as broad as high with a truncated summit*; internal suborbital lobe that separates it from the front, triangular, acuminate. Pterygostomian regions more extensively covered with hairs than those of *C. carnifex* Herbst. Anterior legs almost equal, very short; external margin of the arm granulated, sometimes also the lower margin; upper margin obliquely wrinkled. Upper surface of the wrist a little granulated, and likewise the upper margin of the hands.

The hand of the larger leg scarcely as long as the breadth of the carapace. Ambulatory legs as in *Card. carnifex* Herbst.

Breadth of carapace (♂) (between the raised lateral lines)

55 mm., length 47 mm. Length of the hand of the larger leg 45 mm.

Breadth of carapace (♀) 60 mm., length 48 mm.

19. *Cardisoma obesum*, Dana.

Milne Edwards, l. c. pag. 205.

There are two specimens of *Cardisoma* in the collection, collected at the island of Sumatra, which I think I may refer to the species described by Mr. Milne Edwards. These specimens agree in the most essential characteristics with *Cardisoma hirtipes* Dana, as regards for example, the relative situation of the almost invisible epibranchial tooth, the form and size of the orbits and the very much hairy pterygostomian regions; but the carapace is comparatively much more enlarged, the branchial regions are very tumid and there is no distinct raised lateral line defining the lateral margin.

The very convex lateral surfaces of the carapace are smooth. Anterior legs nearly equal, hands as long as the breadth of the carapace, arm and wrist entirely smooth. In one specimen from Padang the fingers are widely separated, in the other, collected in the northern part of Sumatra, scarcely at all; I think these variations to be individual.

The first joint of the external antennae is somewhat more enlarged than that of *Card. hirtipes*, but not in such a degree as in *Card. carnifex*. Breadth of carapace (♂) (the tumid lateral parts of the carapace included) 83 mm., length 65 mm. Length of the hand 85 mm.

This form bears evidently the same relation to *Card. hirtipes* as *Card. urvillei* does to *Card. carnifex*.

There is one more beautiful male specimen of *Cardisoma* in the collection, that agrees almost entirely with *Card. obesum*, but the branchial regions are still more tumid, in such a degree, that the middle part of the carapace is *concave*.

I cannot decide whether this form belongs to a proper species or not, though I think it to be probable; the an-

terior legs are robust, equal in size; the hands scarcely as long as the breadth of the carapace; the outer surface of the hands punctate, and their lower margin a little granular.

Breadth of carapace (the tumid lateral parts included) 95 mm., length 67 mm.

This specimen was collected at the island of Morotai by the late Mr. Bernstein.

LEIDEN, November '79.

NOTE VI.

ON VESPERTILIO AKOKOMULI AND VESPERTILIO ERYTHRODACTYLUS, TYPES OF TEMMINCK.

BY

Dr. F. A. JENTINK.

November 1879.

Vespertilio akokomuli, Temminck.

Temminck [1]) states »il paraît que les Japonais confondent le *Vespertilion macrodactyle* avec le *Vespertilion abrame*, l'un et l'autre sont désignés par eux sous le nom de *Komuli*."

In the description of his V. abramus [2]) however we read »nous conservons son nom japonais" viz. *abrame*. Concerning the indigenous name of V. akokomuli [3]) he says »son nom japonais est *Komuli*, que porte aussi le *V. macrodactyle*." In the Fauna japonica [4]) we learn „le nom japonais du *V. macrodactyle* n'est pas indiqué", further [5]) „le nom japonais du *V. abrame* est *abramusi* (insecte du lard)" and [6]) »le nom japonais du *V. akakomuli* (*akokomuli*

1) Monographies de Mammalogie, II, p. 232.
2) ibid. p. 233.
3) ibid. p. 234.
4) Fauna japonica, p. 17.
5) ibid. p. 17.
6) ibid. p. 18.

see supra) serait selon M. Burger *Komuli* ou *akakomuli* (Vespertilion noir)". Finally Temminck [1]) says »le nom japonais du *V. molosse* est *aka-komuli*."

Every body will agree that the confusion is very great, and is still increased by examining Temminck's types which show that *V. akokomuli* is *not* a black bat, but a brownish one!

I supposed that the Japanese word *komuli* signified *a bat*. My friend Mr. Serrurier, assistant to the Ethnographical Museum, however kindly informed me that the Japanese do not pronounce or write the character *l*, and that they call *a bat*, *Kōmori* [2]). The Japanese word *akaki* signifying *red*, is abridged in compounds to *aka*; and so *akakōmori* signifies *red bat*. In this way it becomes intelligible why the Japanese apply the common term *Kōmori* in designating Temminck's three new described species, and it is also evident that they have not confounded them. *Abramusi* is nothing, but *Abŭrá-musi* [3]) signifies at Nagasaki and Miyako *shining insect*, the name for *Blatta orientalis*: perhaps the bat feeds on these insects.

Temminck refers [4]) in his article on *V. abramus* to pl. 58, figs 1 and 2 (in the Fauna Japonica he quotes pl. 58, fig. 1), but in examining that plate we find that these figs 1 and 2 belong to *V. délicat*, a bat nowhere named in the text. At the head of his description of *V. carolinensis*, Temminck by mistake indicates the same plate 58 fig. 1, as a figure of that species; and he refers in his article on *V. ferrugineus* once more to pl. 58. fig. 2 (this must be pl. 59, figs 1 and 2). But who shall point out what Temminck meant by his *V. délicat*; certainly that

---

1) Fauna japonica p. 15.

2) Kōmori, 伏ク 翼モリ。カハホリ.

3) 滑アブラ 蟲ムシ, Abŭrá-musi.

4) Monographies de Mammalogie, II. p. 232.

figure does not belong to *V. abramus*, which latter species has a postcalcaneal lobe, an organe not represented in the figure referred to. The figures 8 and 9 on plate 57 are those of the *V. akakomulie*, lege *akakōmori*, but inexact in so far as the point of attachment of the wing-membranes «in natura" is the base of the toes and not so high up as is represented in figure 8.

It seems that no naturalist after Temminck has examined the type-specimens of the *V. akakōmori* in the Leyden Museum. Tomes [1]) says «that *V. akokomuli* probably is a good species". Swinhoe [2]) refers that in Hainan and in Canton he has procured bats, determined by Prof. Peters as belonging to *Vesperugo abramus* Tem. (*V. akokomali* or *akakomuli*). Dobson in his Catalogue of the Chiroptera, 1878, for the rest so complete and exact, and also in his Monograph of the Asiatic Chiroptera, 1876, has nowhere spoken of the Bat in question.

Now I have carefully examined the specimens in our Museum, labeled *V. akakomuli* by Temminck (four alcoholic and one stuffed specimen) and I have not found any difference between them and *V. abramus* Tem., neither in dentition, nor in color, nor in size: the males present the same characteristic peculiarity, sc. the enormous development of the long bony penis, «which, in proportion to the size of the animal, is much larger than in any other species of Bat", as Dobson remarks [3]). Thus *Vesperugo akakōmori* is synonymous with *Vesperugo abramus* Tem. Dobson has only omitted to observe that the *abramus* has the incisors of the lower jaw trifid.

Vespertilio erythrodactylus, Temminck.

Another species not mentioned by Dobson in his work

1) P. Z. S. L. 1858, p. 539, Note.
2) P. Z. S. L. 1870, p. 227 and p. 618.
3) Catalogue of the Chiroptera, 1878, p. 227.

above referred to is *Vespertilio erythrodactylus*, Temminck; the type specimens are described in Temminck's Monographies de Mammalogie, II, p. 238. The only author who refers to this species is Allen in his Monograph of the Bats of North America, 1864, where he gives, p. 76, a translation of Temminck's description, without more, and p. 46 he enumerates *V. erythrodactylus* among the so-called species of North America. It seems that Temminck himself has hesitated whether his species was a good one, for he says, p. 239, »cette espèce présumée nouvelle".

And indeed, having now studied the type specimens in our Museum, I am convinced that they belong to *Vesperugo georgianus* F. Cuv., agreeing wholly with the descriptions of this species given by Allen and Dobson.

NOTE VII.

DESCRIPTIONS OF THREE NEW SPECIES OF COLEOPTERA COLLECTED DURING THE RECENT SCIENTIFIC SUMATRA-EXPEDITION.

BY

E. REITTER.

---

1. *Scaphidium aterrimum*, sp. n.

Nigrum, nitidissimum, antennis, clava excepta, femoribus rufis, tibiis tarsisque rufo-piceis, oculis subdistantibus; prothorace sat dense punctato, antrorsum lateribusque lineatim marginato, ante basin linea transverse arcuata et secunda media ante scutellum longitudinali, antrorsum abbreviata, grosse punctatis, impresso; elytris subtiliter punctatis, stria suturali fortiter impressa, in fundo punctis minutis perspicuuis, linea basali grosse punctatis; pygidium, propygidium subtusque fere laevis. — Long. 3,3 mm.

Entirely black and very shining; the antennae except the club, and the femora rusty-red, the tibiae and tarsi dark brown; upper surface finely although very distinctly and rather densely punctured; under surface with hardly any punctures. The antennae short, the club clearly defined and of the usual shape. The eyes tolerably distant from each other. In most oriental species they are quite close to each other on the fore-head. The thorax but little broader than long, considerably narrowed towards the front margin, the sides and the front margin provided with a

distinct marginal line; the usual curved, coarsely punctured line before the hind margin; moreover with a rudimental longitudinal line in front of the scutellum. The elytra punctured in the same manner as the thorax, the deeply impressed sutural line with minute punctures on the bottom and strongly curved at the base; the upper surface of the two apical segments of the abdomen with hardly any punctures.

It is a small species which may be easily distinguished by its deep black coloration.

Two specimens were captured in May 1878 in the district of Rawas.

2. *Epuraea latissima*, sp. n. ♀.

Latissima, depressa, vix nitida, fusco testacea, confertissime et subtilissime punctulata, pube brevissima, depressa, dense sericea, fronte vix foveolata, prothorace transverso, longitudine fere duplo latiore, antrorsum profunde emarginato, lateribus aequaliter angustissime marginato, ad medio antrorsum angustato, basi fere recte truncato, elytris thorace vix evidenter latioribus et sesqui longioribus, apicem versus leviter angustatis, apice truncatis, pygidio vix obtegentibus, lateribus anguste marginato-reflexis; scutello sat magno, subtriangulare; antennarum clava vix obscura. — Long. 3,1 mm.

Distinguished by the considerable width of the body, by the very dense, fine and equal punctuation of the upper surface, and by the short and dense silky pubescence. The body is only $1^1/_2$ as long as broad; the thorax subtruncate at the base, becoming narrower from the middle towards the front margin, the sides very narrowly edged and curved upwards, the front margin deeply incised; the elytra as broad as the thorax at the base, narrowed from the middle towards the apex which is truncate.

The ♂ is unknown.

This species is allied to *E. terminata* Rttr [1]), but broader and shorter, and moreover distinguished by its brighter color, dense punctuation and narrowly edged sides.

The described female specimen was captured in July 1877 at Sidjoendjoeng.

3. *Chelonarium orientale*, sp. n.

Oblongo-ovatum, convexum, nigrum, subtus piceum, fulvo-pilosum, pedibus infra tarsisque ferrugineis, capite fulvo-, fronte apice albido piloso, prothorace basi fortiter punctato-crenato, dorso dense longiusque fulvo piloso, pilis albis intermixtis, ante basin lineis quinque, antice abbreviatis, formantibus; elytris medio subgibbosis, dense punctulatis, prope basin utrinque obsoletissime subsulcatis, nigro pilosis, pilis pone scutellum fulvis et pilis albis maculis irroratis fasciisque ante apicem indistincte formantibus. — Long. 5 mm.

Elongate-ovoid, black; under surface darkbrown, covered with a dense brownish yellow pubescence and densely punctured; the inner side of the legs and the tarsi rusty yellow, the antennae rusty red, the long basal joints much darker; upper surface black. Head with a brownish yellow pubescence and with a long and white one in front of the thorax. The pubescence is dense all over, rather long and erect. Thorax of the normal shape, very finely and towards the base indistinctly punctured; near the hind border with deep pits, which make it appears strongly crenulated. Pronotum yellowish red, the pubescence in the middle somewhat darker, with five abbreviated longitudinal lines at the base formed by white hairs. Scutellum as long as broad, rounded posteriorly and ornamented with white sleek hairs arranged radially. Elytra densely and very finely punctured, with inconspicuous abbreviated

1) *Verhandlungen des naturforschenden Vereines in Brünn.* Bd. XII (1873). S. 30.

longitudinal grooves at the base close to the shoulders; the pubescence black, behind the scutellum a patch of rusty yellow pubescence, and moreover intermixed with white hairs, which form many scattered small white patches, and two indistinct transverse bands before the apex.

A single specimen was captured in May 1878 in the district of Rawas.

Vienna, December 1879.

NOTE VIII.

HAPALEMUR SIMUS.

BY

H. SCHLEGEL.

Dec. 1879.

The late Director of the British Museum, Dr. J. E. Gray in establishing this species, (Catalogue of Monkeys, London, 1 Dec. 1870, p. 133) assigns to it the following characteristics:

"Back iron-grey, with a rufous tinge; the hairs black, with a subapical rufous band, and the lower part lead-coloured; throat whitish; patch on rump at base of tail yellowish. — Hapalemur griseus, Schlegel et Pollen, Faune Madagasc. p. 6, t. 3 et 7, fig. 4. (skull without upper cutting-teeth) — Habits Madagascar. — This may be Hapalemur olivacea; but that species is very imperfectly described, and it is said to have a different form of the hinder part of the lower jaw; but what the difference is, is not mentioned; and I do not see any difference in the hinder part of the lower jaws of the two species. The front of the jaw in H. griseus is very much more slender and weak than in H. simus. The colour of the fur is exactly similar to that of H. griseus; only there is a pale spot on the rump at the base of the tail, which may be accidental, or caused by the manner in which it was confined in its cage."

Other observations by the same author on this subject

are contained in the Proceedings of the Zoological Society, London 1870, p. 828. We think is necessary to repeat these also:

"Notes on Hapalemur simus, a new species living in the Gardens of the Society. By Dr. J. E. Gray, F. R. S. etc.

"(Plate 52)."

"Every day, as the Osteology of the species is more studied, brings to our knowledge the fact that Mammalia which are so alike in external appearance as not to be distinguishable, prove on the examination of the bones, and especially of the skulls, to belong to very distinct species; and some even, as in the leafnosed Bats and American Tapirs, prove to be very distinct genera. The animal I am about to bring before the Society is an example of this kind among the Lemuridae. Mr. Bartlett during the autumn brought to the British Museum a Lemur, which had died in the Society's Gardens to be determined, that its name might be entered in the list of recent accenssions; and I agreed to purchase it for the collection. On the casual inspection of the animal in its dead state, I believed it to be a large specimen of Hapalemur griseus. The preserved specimen and skull were exhibited on November the first. On examining the animal before it was placed in the public room of the British-Museum collection, I was convinced, that it was of a very distinct species from Hapalemur griseus, then in the Museum, and I have therefore sent to the Society the following notes, showing the distinction of the two species.

"I. Nose tapering, narrow in front. Skull — nose tapering narrow in front; palate dilated behind; series of grinders converging in front; lower jaw broad and strong in front, with a long symphysis. Hapalemur.

"Hapalemur griseus.

"Hapalemur griseus, Sclater, Proc. Zool. Soc., 1863, p. 161; Mivart, ibid., 1864, p 613, fig., skull (copied, Catal. Monkeys etc. B. M., p. 77)."

"II. Nose broad and truncated. Skull — nose very broad, square, truncated in front; palate scarcely wider behind; series of grinders wide apart and nearly parallel; lower jaw weak and narrow in front, with a short symphysis. Prolemur.

""Hapalemur simus, sp. nov. (Pl. 52) B. M."

"Back iron-grey, with a rufous tinge; the hairs black, with a subapical rufous band, and the lower part lead-coloured; throat whitish; spot on rump at base of tail yellowish."

""Hab. Madagascar."

"This may be Hapalemur olivaceus; but that species is very imperfectly described, and it is said to have a different form of the hinder parts of the lower jaw; but what the difference is, is not mentioned, and I do not see any difference in the hinder part of the lower jaws of the two species. The front of the jaw in H. griseus is very much more slender and weak than in H. simus.

"The skull rather solid; nose broad, truncated in front: palate slightly concave, nearly as broad before as behind, the teeth series being nearly parallel: cutting-teeth $\frac{4}{6}$; the upper subcylindrical, close by the front side of the canine; inner rather the smallest; lower shelving, in two groups, the four inner much compressed: canines $\frac{1}{1} \cdot \frac{1}{1}$; upper triangular, conical; lower rather compressed, with a conical lobe on the front edge.

"The animal on which the species is established is full-grown but the state of the hinder grinders shows that it had not reached adult age; it shows no sign of sexual organs, but is most probably a female."

"It died soon after its arrival at the Gardens, and unfortunately had not had time to recover the effects of its confinement on the voyage."

"The tips of the long hairs of the fur of the greater part of the body have been worn off, leaving only a lead-coloured cottony wool. The head, neck, and outside of limbs, where the tips of the long hairs remain, are

exactly the same colour as the fur of the British Museum specimen of Hapalemur griseus, not showing the slightest reason for believing that one would be called H. griseus and the other H. olivaceus."

"I have retained the name of H. griseus for the specimens we received from Dr. Meller, which Mr. Sclater determined in the "Proceedings" of this Society to be of that species, but which have the fur much more fit to be called olivaceus than grey.

"P.S. — I have to day (Dec. 9th) been able to obtain from the Society "Pollen and van Dams Faune de Madagascar", and I see clearly that the animal that I have described as Hapalemur simus is the Hapalemur griseus of those authors (p. 6, tab. 3); for at tab. 7 fig. 4 they figure the skull, showing the truncated form of the nose and the wide palate. They consider it the same as the Hapalemur griseus of Geoffroy St. Hilaire, and also Hapalemur olivaceus of Isidore Geoffroy, observing, "le crâne avec ses dents ne s'éloigne en aucune manière de celui du soi-disant Lemur griseus; mais cette partie présente, suivant les individus, des différences très sensibles par la forme des orbites, tantôt orbiculaires, tantôt un peu elliptiques, par les nasaux tantôt saillants, tantôt rentrants, par le manque ou l'existence d'incisives à la mâchoire supérieure, et par d'autres traits de moindre importance."

"I had no doubt of H. simus being quite distinct from what we had called H. griseus in England. The upper cutting teeth of the Museum skull of H. simus are as distinct as they are in H. griseus."

The reader may judge by the foregoing pages, which contain an exact copy of all the notes, published by Dr. Gray about Hapalemur simus, how much this zoologist was puzzled with a subject, simple in its kind, indeed.

In his search for osteological characteristics, where there exist none, in his anxiety of furnishing the species with a precise diagnosis, he falls in a network of repetitions, and spreads confusion when he tries to elucidate.

I, at least, when I published, in 1876, my monographical review of the order of Simiae, by the want of a specimen of Hapalemur simus, did not deem it seasonable to adopt this species. I saw, of course, myself obliged to speak of the species in the following terms (see my article of Hapalemur griseus, l. c. p. 316).

»Hapalemur simus, Gray, Cat., p. 133; Pr. Z. S. L., 1870, p. 828, pl. 52: figure peu reconnaissable, mais que Gray lui-même dit être identique avec celle du Hapalemur griseus, publiée par nous dans la Faune de Madagascar. Gray prétend, du reste, que le Hapalemur griseus du Musée Britannique appartient à une autre espèce. Je ne comprends rien à cette distinction, vu que notre individu figuré dans la Faune de Madagascar ne diffère nullement de l'individu type du Hap. griseus, cédé par Is. Geoffroy a notre Musée, c'est notre N°. 1."

The fact of the matter is, that Gray, as is proved by his Catalogue, at the time did not possess at all the true Hapal. griseus, that he considered Hapal. olivaceus, Is. Geoffr. which is a slight individual variety of Hapal. griseus, as different, and that his specimen of Hapal. simus, having lived for a considerable time in captivity, had its hairs considerably damaged, and that the specimen in general was rather in an unfavorable state.

A comparison between the two species of the subgenus Hapalemur shows that they agree in form, proportions, in the dentition, and in general colour of the fur, but that they differ widely from each other by the following characteristics.

Hapalemur simus is a considerably larger animal than Hapalemur griseus, as will be shown by the comparative measurements of the two species. It has the ears fringed by greyish white hairs almost as long as the ears themselves, whereas the hairs bordering the ear of Hapalemur griseus are not longer than in the other parts of these organs. Another very conspicuous characteristic is presented by a large spot of an uniform very pale yellowish rusty colour

occupying the end of the rump and the upper part of the base of the tail, exactly similar to what we observe in the Avahi (Avahi laniger), and of which there is no trace in Hapalemur griseus. The muzzle greyish in Hapalemur griseus, with a narrow longitudinal blackish stripe between the eyes, is, in Hapalemur simus blackish and this colour occupies also the whole space between the eyes. The chin and throat are tinged with brown in H. simus and not greyish as in H. griseus.

Measurements (French feet).

	H. simus.	H. griseus.
Total length.	2 f. 8 inch.	2 f.
Tail	1 f. 5 inch.	1 f.
Length of skull	3 inches.	2 i. 4 l.
Breadth of skull	2 i. 3. l.	1 i. 8 l.

It appears that Hapalemur simus is a very rare species. Our traveller, Mr. Audebert, although exploring for several years the country surrounding the large bay of Antongil situated on the N. E. Coast of Madagascar, a region where the Hapalemur griseus abounds, could procure no more than one specimen of Hapalemur simus and it was altogether not met with on the western part of the island where H. griseus is by no means a rare species.

NOTE IX.

ON DASYURUS ALBOPUNCTATUS.

BY

H. SCHLEGEL.

The recent discoveries in New-Guinea have shown, that this large island produces several forms of Mammalia, hitherto considered as exclusive Australian; but we did not expect even the genus Dasyurus to be represented in New-Guinea.

The species inhabiting this country appears to be new to science, and is designed by me under the above-named epithet in consequence of the numerous white spots of its dark fur.

The genus Dasyurus can be naturally subdivided into three minor groups.

The first of these comprises the true Dasyuri, characterized by their hindfeet presenting a rudimentary thumb in the form of a nailless stump. Add to this, that their tail, although well covered with hair, is not bushy, and that this member is about equal in lenght to the rest of the body. The size of these animals varies, after the species, from that of a strong Martin to that of a Pole-cat. — This group comprises four of the six known species of the genus, viz. Dasyurus maculatus or macrourus from South-East-Australia; Dasyurus geoffroyi from Western Australia; Das. hallucatus from Port Essington, a species which I have not been able to study in nature, and which is said

to differ from the other ones by the greater development of the rudimentary thumb; last of all our Das. albopunctatus from Papua.

The second group is only represented by Dasyurus viverrinus or maugei from South-East-Australia. At first sight this species, of the size of a Pole-cat, resembles the true Dasyuri by having like these the fur covered with white spots; but is at once distinguished by the entire want of a rudiment of a thumb at the hind-feet, as well as by its tail, which, being covered with long hair, is bushy, but on the contrary, somewhat shorter, its whole length equalling only that of the rest of the body without the head.

The third group is formed by Dasyurus ursinus from Tasmania, wanting, like Das. viverrinus, all trace of a thumb at the hind feet, but forming, for the rest, a species, in many instances deviating from all the others of the genus. This animal has the size of a cat. It is stouter in all its parts than the other Dasyuri; the head is greater and less elongated; the tail, occupying only one third of the length of the rest of the body is covered, like this part, with rugged hair, whose black colour is only interrupted by white at the chest, behind the shoulders and at the base of the tail.

Returning to the true Dasyuri, the largest of all, Das. maculatus, attains, the tail included, a total length of three feet one inch (French measure). The ears measure one inch and two lines. The hairs of the tail measure about nine inches. The colour of the fur is a fine red-brown, interrupted by irregular larger or smaller white spots scattered over the body and tail, but the head is unspotted and the under-part of the animal is yellowish white. — Dasyurus geoffroyi is a smaller species, its whole length attaining hardly two feet. It is easily recognized by its great ears, whose height measures eighteen lines. As to the hair of the tail, there is no difference between this species and the foregoing; but the principal colour of

the fur is a yellowish brown, rather regularly covered, with the exception of tail and head, with white spots of about half an inch in diameter.

The only specimen we possess of Das. albopunctatus is due to a Dutch missionary collecting in the range of the Arfak-mountains. Although adult it is somewhat smaller than Das. geoffroyi, its whole length being nineteen inches, from which eight and a half are occupied by the tail. It has the skull larger and the snout much shorter than D. geoffroyi; but the principal difference between our new species and all the others consists in the shortness of the hair of its tail, the hair of which measures hardly five lines, and in the numerous small white spots, which cover the dark brown fur extending to the crown of the head, but not to the tail. The underparts of the animal are, as commonly, of a whitish yellow. Length of the ear eight lines.

NOTE X.

ON A NEW SPECIES AND A NEW VARIETY OF THE FAMILY EUCNEMIDAE COLLECTED DURING THE RECENT SCIENTIFIC SUMATRA-EXPEDITION.

BY

VICOMTE H. DE BONVOULOIR.

Dromœolus inopinatus, sp. n.

Supra niger, pube subtili grisea leviter vestitus; carina interoculari medio late sejuncta; clypeo basi mediocriter coarctato; antennis totis ferrugineis, articulo secundo quarto breviore, tertio quarto longiore; pronoto latitudine breviore, antice attenuato, basi noncarinato; elytris a basi ad apicem attenuatis, leviter striatis, interstitiis sat dense sub-rugulose punctatis; pedibus tarsisque ferrugineis. — Long. $4^1/_2$ mm.

Body oblong, moderately convex above, rather considerably and gradually narrowing from the base of the elytra towards their apex; pitch-black all over, thinly covered above with a fine and short greyish pubescence, which is rather more conspicuous and more yellowish at the base of the pronotum and elytra. Head not very closely punctured, not rugose. The interocular ridge widely separated at the base of the epistome. The forehead not carinated longitudinally. The epistome but little narrowed at its base, almost as broad as the space between it and the eye. The antennae entirely ferrugineous, the first joint longer than the two following together, the second con-

spicuously shorter than the fourth, the third more elongated than the fourth, the following hardly longer than broad, becoming gradually longer towards the tip. The pronotum shorter than broad, rather convex, narrowed towards the front margin, more distinctly so at the anterior half; the posterior median lobe short, rather sunken, without any trace of a longitudinal line at its base, but with a slight oblique impression on both sides of the median line; densely punctured, especially at the sides, but not rugose. The elytra rather considerably and gradually narrowed towards the apex, rather finely but visibly striated, their interstices densely punctured and slightly rugose transversely. Under surface of the body pitch-black, rather considerably and densely punctured. The prosternal sutures distinctly furrowed, anteriorly closed against the angle of the prosternum. The legs ferrugineous.

This species may easily be distinguished from *Dromœolus modestus* Bonv. [1]) by its more attenuated shape, by the third joint of the antennae being considerably longer than the second and the fourth, and by the less narrow base of the epistome. It cannot be confounded with *D. Funckii* Bonv. [2]) because of its less narrow shape, of the second joint of its antennae being much shorter, and of the epistome being much less narrowed at its base.

It must be placed between the last mentioned species and *D. semigriseus* Bonv. [3]) from which its differs by its much smaller size, by the absence of the distinct spot formed by the pubescence, and by the more attenuated shape of the elytra posteriorly.

A single specimen was captured in October 1877 at Alahan pandjang.

---

1) H. de Bonvouloir, *Monographie de la famille des Eucnémides.* p. 236, n°. 26; pl. 10, fig. 5.

2) Id. *l. c.* p. 237, n°. 27; pl. 10, fig. 6.

3) Id. *l. c.* p. 238, n°. 28; pl. 10, fig. 7.

Henecocerus angusticollis, Bonv. [1]) variety.

Although the specimen which I have before me measures only 7 mm. in stead of 11, and although the color of its body is much more reddish-brown than it was in the specimens on which I have established this species, I fail to find any characters enough marked for the establishment of a distinct species. In the genera *Emathion* Casteln. and *Nematodes* Latr. (following upon *Henecocerus* Bonv.) we find such considerable differences in size, that this character loses much of its value. Nevertheless the specimen which I have before me belongs to a curious variety.

A single specimen was captured in June 1878 at Koetoer.

Bagnères-de-Bigorre (Hautes-Pyrénées), December 1879.

1) Id *l. c.* p. 635; pl. 31, fig. 1.

NOTE XI.

ON LEPUS SALAE, A NEW AFRICAN HARE.

BY

Dr. F. A. JENTINK.

Febr. 1880.

Hitherto only a small number of well defined species of Hares are known from Africa, viz: one or two species from Algiers and Tunis; eleven have been described as inhabiting the N. E. parts of Africa as far as Somáliland, while Waterhouse [1]) has pointed out that in South Africa there exist three well-marked species of Hares. Two of these species have been captured also at Tette and Quellimane, 17° S. L. [2]). But no naturalist ever saw a Hare from the West-Coast of Africa. About ten years ago Mr. D. Sala, a naturalist attached to the Leyden Museum, discovered a Hare in the neighbourhood of Mossamedes (Benguela). This specimen will form the type of a new species as it differs from all the hitherto described species, and I propose to call it after its discoverer, *Lepus salae.*

Prima facie our Hare is distinguished from the Cape-Hares by its bright color, in which respect it more resembles the Nubian Hare, *L. isabellinus;* with the latter *L. salae* also agrees in having a white streak from the nose to and round the eyes. The tail is very short, much shorter than in the other African species. Ears longer than head, a characteristic common to all other African

1) Natural History of the Mammalia, 1848, Vol. II, pag. 91 sqq.

2) Peters. Reise nach Mosambique.

Hares, with one exception, viz: *Lepus microtis* v. Heuglin [1]).

The fur on the upper parts of the body is of a light brownish red color, each hair having a brownish black subterminal ring. This ring is not present on the hairs of the flanks of the outside of the legs, of the head, ears and chest, and so these parts appear of a finer bright reddish color. The hairs on the belly and abdomen are white throughout: as also are those on the inside of legs, chin, cheeks, a line running from the nostrils to the eyes and a circle round the eyes. The base of the ears posteriorly and a fringe of rather long hairs on the inner margin of the earconch are also pure white. The outer margin of the ear is of the same color, the point being fringed with short brownish black hairs. A patch on the neck behind the base of the ears is whitish, each hair being here light reddish and white tipped.

Tail black above and pure white beneath.

Whiskers surpassing the eyes, the longest are black with long white tips, the shorter ones are entirely white. Sex unknown.

	m. m.
Length from tip of nose to root of tail	462
Length of ear	126
Length of tail with hairs	40
Length of tarsus and nails	110
Total length of skull	82
Width between zygomatics	40
Length of nasal bones	35
Width of nasal bones behind	18
„ „ „ „ in front	10
Distance between both the molar series behind .	13
„ „ „ „ „ „ in front .	10
Length of molar series	13,5
Distance between incisor and first upper molar .	22
„ „ „ „ „ lower molar .	18

Hab. W. Africa, Benguela (Mossamedes); D. Sala.

1) Nov. Act. Ac. Caes. Leop. Car. Germ. Nat. Cur 1865, T. XXXVI, pars I. pag. 32.

NOTE XII.

ON AN ANOMALOUS SPECIES OF HARE DISCOVERED IN THE ISLE OF SUMATRA: LEPUS NETSCHERI.

BY

H. SCHLEGEL.

February 1880.

The researches of naturalists hitherto made in order to ascertain the geographical range of the hare-tribe have led to the conclusion, that these animals, spread over the whole of America and Europe, over Northern and South-Africa, as well as over a great part of Asia, are not found in the neighbouring islands of the Philippines, in the whole Malayan Archipelago, and as appears are more-over wanting in the Malayan Peninsula.

Of the two genera composing the hare-tribe, the one, that of Lagomys, characterized by the entire want of tail, is confined to Northern Asia and the Rocky-Mountains of North-America. The other genus, that of Lepus, is represented in all the regions inhabited by the hare-tribe in general. An attempt to subdivide this genus in minor groups is attended with numerous difficulties. European sportsmen are in the habit of designing under the name of „rabbits" the species having the ears, legs and tail shorter than the true hares, and commonly making bur-

rows for their residence; but the variability of these characteristics in the different species does not allow a strict application of them. In comparing, for instance, the mountain-hare of South-Africa (Lepus saxatilis) and the Japanese species (Lepus brachyurus) to the common hare (Lepus timidus) we are obliged to range all the three species under the true hares with long legs; although we find, that the mountain-hare has the tail and ears considerably longer than our common hare, whereas the Japanese hare has the tail and ears as short as our common rabbit. The same variability not coinciding with other characteristics, exists with respect to the nature of the fur. We know that in the majority of species the wool viz: the imperfect hairs, grows at the expense of the true or perfectly developed hairs, and that such is in a great measure the case in some species during the cold season. In the Chinese hare (Lepus sinensis), for instance the hairs are developed at the expense of the wool, which is somewhat longer and coarser than in most of the other species, and in the small hare of Assam and Butan (Lepus hispidus), the hair is stiffened even to rigidness.

The known species, inhabiting the old world, the South-Eastern limits of the geographical range of the hare-tribe are the following.

1. Lepus nigricollis, Fr. Cuvier (Lepus melanauchen, Temminck, lapsu pennae), a true hare distinguished by its black neck, inhabiting the Indian peninsula and the island of Ceylon. This species occurs also in a wild state in some restricted parts of North-Western Java, but it is generally believed, that it has been introduced at an earlier period from Ceylon, a similar introduction having likewise taken place in the isle of Mauritius.

2. Lepus hispidus, Pearson; Caprolagus hispidus, Blyth, from Butan and Assam. This is an anomalous species, not only by its rigid hair, but more especially by its short ears, measuring only two thirds of those of our common

rabbit. Its legs and tail are short, and the animal is much inferior in size even to our common rabbit.

3. Lepus hainanus, Swinhoe, from the isle of Hainan. A true hare clothed with a woolly fur.

4. Lepus sinensis. According to Swinhoe, the Chinese hare ranges from Canton to Peking; it occurs also in the island of Formosa, and is the only species inhabiting these countries. It is a true hare, but its fur is provided at the expense of wool, with tolerably long and somewhat coarse hair, quite unlike to the woolly fur of the hare of Hainan, although this island is situated several degrees to the south of Canton.

5. The Japanese hare, Lepus brachyurus, Temminck. This is a true hare with a woolly fur and elongated legs, but it has a shorter tail and its ears are likewise shorter than usually, characteristics which bring the animal in these points near to the rabbits.

As stated before, no species of the hare-tribe has been hitherto observed, in the natural wild state, in the Philippines, nor in the Malayan Archipelago. I was, of course, surprised in the highest degree, when I read, in a letter adressed to me by E. Netscher, Esq., a member of the council of Dutch India, that this high functionary during his residence at Padang-Pandjang, situated in the upper countries (bovenlanden) of Padang on the South-West-Coast of the islands of Sumatra, had obtained a specimen of a small rabbit-like but very short-eared animal, which was entirely unknown to the natives. The specimen, preserved in spirits was kindly presented by this gentleman to our National Museum of Natural History, where it arrived some weeks ago. To my utter astonishment, it proved to belong to an totally unknown species of the hare-tribe, corresponding in size, form and shortness of the ears with Lepus hispidus, but presenting a still shorter tail, a woolly soft fur, and a system of coloration as beautiful as it is uncommon among the hare-tribe, the upper parts being largely striped and crossed with black and the greyish general tint of the

fur passing, on the hind part of the animal into a fine rusty tint.

However we may consider our little animal, we must acknowledge that, in the series of hares, it ranges next to Lepus hispidus, but that in other respects, it is anomolous and stands by itself.

In addition to the foregoing considerations I subjoin here a note furnished by Kelaart, Prodromus Faunae Zeylonicae, p. 72 on a small animal, living in the mountains of Ceylon, which, perhaps, falls into the category of Lepus netscheri and hispidus. Kelaart says: „an animal, called „a small hare" was described to us by a gentleman in Newera Ellia, which makes us think that a Lagomys also exists in the Island. This hare pursued by dogs took refuge in the hollow of a felled trunk of a tree, which it was made to quit only by smoking the hollow: the animal was eventually devoured by dogs. This notice will, we trust, attract the attention of some sportsmen in the alpine parts of the Island, who may probably be able to add another quadruped new to the Fauna of Ceylon."

In giving to our curious animal the name of its discoverer, I have been guided by the feeling of gratitude towards a gentleman, who has shown so remarkable an interest in the promotion of natural history.

Dr. Jentink, one of the officers of our Museum has, at my request, furnished the following details of the

LEPUS NETSCHERI n. sp.

The species about to be described is most curious and unlike to all that is hitherto known about Hares, though it does not present any perceptible difference in general structure and proportions of skull and skeleton, the fur is so strikingly colored, that one is reminded in this respect of certain species of the Cat-family.

Our new species is about equal in size to the common

Rabbit. Its ears however are much shorter, even shorter than in *L. hispidus*: the tail also is extraordinarily short, presenting the smallest number of vertebrae hitherto observed in Hare-tails. The ground-color of the soft and rather short fur on the upperparts of the body is a dirty yellowish grey, passing to a very beautiful mahogany brown on the haunches and hindparts. A black stripe, broad between the eyes, narrower on the back, runs from the tip of the nose, between the ears along the middle of the back to the extremity of the tail [1]). A circle round the eyes, the sides of the head behind the eyes, a line from these parts to the base of the ears and downwards in a semicircular curve round the cheeks to the corner of the mouth are of the same black color. The same color predominates on the external surface of the ears, further in a broad collar which on the chest becomes a triangular patch with the top turned downwards. Another broad black band commences on the shoulders and is curved upwards to the black stripe on the middle of the back with which it comes together just before the haunches; a simular broad band runs along the groins and approaches the black dorsal-stripe, whereas finally the thighs externally and a ring nearly round the middle of the tarsus are also of the same black color. On the rump and shoulders there is an admixture of black hairs. The hairs of the underparts of the body. inside of the legs, chin and those round the nostrils are white. The fore-legs and the hairs on the sole of the feet are of a more dark greyish hue. Whiskers entirely white or entirely black, only a few are white with a black tip. They are very numerous, longer than the head and the longest reach to the middle of the ear. Ears much shorter than the head, laid forwards the tip extends to the hindmost corner of the eye or slightly beyond it. Head broad; muzzle short; legs generally less developed than usually; tail very short.

1) On the hindmost part of the back this black line seems to acquire a more or less zigzaglike course.

	m. m.
Length from tip of nose to root of tail	417
Length of ear	35
Length of tarsus and nails	75

The skeleton presents *twelve* dorsal-vertebrae with *twelve* pair of ribs, *seven* lumbares and *twelve* sacrales and caudales: in the skeleton of the other Hare-species there are the same number of vertebrae dorsales and lumbares and of ribs, but the sacral and caudal vertebrae are always more numerous, viz: from *nineteen* to *twenty-four*. With regard to the number of vertebrae in the short tail the Sumatran species agrees with the genus Lagomys, but in Lagomys there are always *seventeen* pair of ribs and *four* or *five* lumbares.

The skull of our new species compared with that of the other Hares presents the following particularities; the antorbital foramina as usually present an open bony network but the zygomatic arches are less strong than in other Hares; the nasal bones are broader and less elongated than in true Hares and agree more with these parts in *L. hispidus*; the same is the case with the bony palate, which is nearly as long as broad, and with the incisors which are very strong and broad; the distance between the molar series and also between the zygomatic arches is very great. In structure and proportions of the skull the Sumatran Hare agrees more with *L. hispidus* than with any other known *Lepus*-species.

Sex unknown.

	m. m.
Total length of skull	70
Width between zygomatics	37
Length of nasal bones	22
Width of nasal bones behind	15,5
„ „ „ „ in front	11
Distance between both the molar series, upper jaw, behind	14
Length of the molars, upper jaw	14
„ „ „ „ lower jaw	15,5

	m. m.
Distance between incisor and first upper molar . .	20
„ „ „ „ „ lower molar . .	15,5
Incisor of upper jaw, in front	3
Incisor of lower jaw, in front	3

Hab: Sumatra; Padang-Pandjang. (E. Netscher.)

Padang-Pandjang about 2000 feet above the sea, in the plains Sawahs (Rice-fields), for the rest woods. The climate is humid (v. Rosenberg).

NOTE XIII.

ON SOME SPECIES OF GELASIMUS LATR. AND MACROPHTHALMUS LATR.

BY

J. G. DE MAN.

March 1880.

Gelasimus vocans Rumph.

Milne Edwards, Observ. sur la classification des Crustacés, 1852, pag. 145. Hilgendorf. in Baron von der Decken's Reise, pag. 83.

In the collection of our Museum there are specimens of this species from the Indian Archipelago (Celebes, Amboina, Ceram and Java) and from the island of Nossi-Bé near Madagascar, which entirely agree with one another. The median furrow of the front however is never so narrow and small as has been figured by Milne Edwards (l. c. pl. III, fig. 4). This species may be distinguished at first sight by the characteristical shape of the larger hand, and is distributed throughout the Indo-Pacific Region from Zanzibar to Hongkong and the Fiji Islands.

Gelasimus marionis Desm.

Milne Edwards, l. c. pag. 145, pl. III, fig. 5.

This species has almost the same distribution as *Gel. vocans*, our Museum containing specimens from Nossi-Faly, Java, Makassar and Padang. It is recorded by Milne Edwards from the coast of Malabar. It differs from *Gel. vocans* by the shape of the larger hand; the inner margin of the immobile finger curves upwards, and is but feebly toothed, the inner margin of the upper finger almost *straight*, not arcuate and armed with numerous equal very small teeth; the granular crest on the internal surface of the hand near the articulation of the wrist is *much feebler*, and the crest that is found near the articulation of the upper finger in *Gel. vocans*, does not occur in the other species; for the rest, the inner surface of the hand is a little granulated. In one specimen the larger hand is very small: the breadth of the carapace of this specimen (the distance between the external orbital angles) is 23 mm. and the length of the larger hand but 22 mm. In a typical specimen however that has a breadth of 24 mm., the length of the larger hand is 45 mm.

Gelasimus Dussumieri M. Edw.

Milne Edwards, l. c. pag. 148. Pl. IV, fig. 12.

Some specimens of a *Gelasimus* have been collected by Messrs. Pollen and van Dam at Nossi-Faly and described by Mr. Hoffmann under the name of *Gelas. Dussumieri* Edw. (Hoffmann, Crust. de Madagascar, pag. 17). These specimens indeed agree entirely with specimens from Zanzibar, described by Hilgendorf under that name (Hilgendorf, l. c. pag. 84, Taf. IV, fig. 1), but I am not convinced that these specimens belong to *Gel. Dussumieri*, because the shape of the front seems to me to be somewhat different: only a comparison with typical specimens of *Gel. Dussumieri* may decide in this question. The Museum contains another single male specimen from the Moluccas, collected by Macklot; this specimen agrees in many respects with the Nossi-Faly specimens, but the front is more

spatulate and the lateral margins of the carapace are less arched, but straight and directed very obliquely backward. I think therefore this specimen to belong to another species.

As has been remarked already by Mr. Hoffmann (l. c.), *Gelasimus arcuatus* de Haan is quite another species than that which has been described by Hilgendorf and himself under the name of *Gelas. Dussumieri* Edw.

Gelasimus annulipes M. Edw.

Milne Edwards, l. c. pag. 149. Pl. IV, fig. 15.

We have received specimens of this species from Java, Amboina, Makassar and New-Guinea and from the Island of Nossi-Bé; it is recorded from the whole Indo-Pacific Region by Mr. Miers (Zoology of Rodriguez, Crustacea, pag. 4). This species may be distinguished from the closely allied *Gelas. lacteus* de Haan by the shape of the carapace: the external orbital angle being directed straightly forward in this species, but *obliquely* outward in *Gelas. annulipes:* the distal extremity of the index being arched and without a tooth in *Gelas. lacteus*, but always provided with a tooth in *Gelas. annulipes. Gelas. lacteus* de Haan has been found in Japan and China, the Museum containing many beautiful specimens from Amoy.

Macrophthalmus carinimanus Latr.

Milne Edwards, l. c. pag. 156. Nec: *Macrophth. brevis* Herbst.

The collection contains 6 specimens, collected in the seas of the island of Celebes. This species is quite different from *Macrophth. brevis* Herbst, but is closely allied to *Macrophth. dilatatus* de Haan. It may be distinguished from this Japanese species by the following characteristics: the carapace is proportionally somewhat broader and shorter, though its upper surface presents almost the same

structure: yet the transverse furrows on the antero-lateral regions are always deeper, but the two verrucous tubercles on the branchial regions are found in both species. The point of the external orbital angle is directed obliquely forward and projects as much as the upper margin of the orbits, while it is situated behind that margin in *Macrophth. dilatatus*. But these two species may be distinguished immediately by the shape of the chelipedes: the upper margin of the arm being provided with some (3 or 4) small sharp teeth in *Macrophth. dilatatus*, but only minutely granulated in the other species. The hands of *Macrophth. carinimanus* are *very slender*, with an almost smooth outer surface; on the lower part of it passes the strong crest that proceeds upon the immobile finger; the upper margin is however somewhat minutely granulated, the inner surface for a part very hairy; the fingers are much shorter than the palm of the hand. In *Macrophth. dilatatus* on the contrary the hands are not very slender, with a *very granulated* upper surface, which is separated by a transverse ridge of larger granules from the smooth middle part of the outer surface of the hand; the granular strong crest on its lower part occurs also in this species and borders the smooth middle part below; the fingers are nearly as long as the palm and the index is more arched.

In one specimen, a male, the two anterior teeth of the lateral margins of the carapace are situated closely to one another and almost in contact.

Breadth of carapace of a male of *Macrophth. carinimanus* (the distance between the points of the second lateral teeth) $22^1/_2$ mm., length (without the front) $8^1/_2$ mm.; length of the hands 20 mm.

Breadth of carapace of a male of *Macrophth. dilatatus* 27 mm., length $11^1/_2$ mm., length of the hands 19 mm.

Macrophthalmus brevis Herbst.

Herbst, Krabbe und Krebse, Taf. LX, fig. 4. — Hilgendorf, l. c. pag. 86, Taf. III, fig. 4.

The Museum contains a fine male *Macrophthalmus*, found by Messrs. Pollen and van Dam in the bay of Pasandava in Madagascar, which has not been described by Mr. Hoffmann in his work on the crustaceans, collected by these travellers. This species has been described and very well figured by Mr. Hilgendorf as belonging to *Macrophth. brevis* Herbst; he had found this by a comparison with the authentic specimen in the Berlin Museum. This species however is quite different from *Macrophth. carinimanus* Latr., which was regarded by Mr. Hilgendorf erroneously as identical with Herbst's *Cancer brevis*. I find the following differences: The carapace of *Macrophth. brevis* is comparatively a little less enlarged and longer; the transverse furrows on the antero-lateral regions are *less deep* and the two verrucose tubercles on the branchial regions are *wanting; the second lateral tooth of the carapace is larger and projects more outward than the external orbital angle*, which is almost in contact with it. For the rest the carapace is very minutely granulated. The arms and the hands of the chelipedes are *less elongated*, *less slender;* the hands are comparatively much higher and the lower margin of the immobile finger is in a line with the lower margin of the palm of the hand; the tooth of the index is placed *transversely*, in *Macrophth. carinimanus* it is *angular* and sloping backward. The upper margin of the hands is provided with some spiniform tubercles in this species, but slightly granular in *carinimanus;* the minutely granulated crest near the lower margin of the hand is found in both species.

Breadth of carapace (between the second lateral teeth) $22^1/_2$ mm., length $9^1/_2$ mm., length of the hand $15^1/_2$ mm.

Euplax boscii Aud.

Milne Edwards, l. c. pag. 160. Krauss, Süd-African. Crust. p. 40, Pl. II, fig. 5. Alph. Milne Edwards, Nouv. Arch. t. IX, p. 281.

The Museum contains a beautiful male specimen from Celebes, a female from Amboina, another female from the Indian Ocean, and a young male specimen from New-Caledonia, presented by Mr. Alph. Milne Edwards. Breadth of carapace of the male specimen from Celebes $14^1/_2$ mm., length $10^1/_2$ mm.: the lateral margins of the carapace as also the legs are very hairy and covered with many long brown hairs. This species may be distinguished from the closely allied *Macrophth. quadratus*, that we received also from Mr. Milne Edwards, by the shape of the lateral teeth of the carapace and the sculpture of the lower orbital margin.

NOTE XIV.

REVISION OF THE FOSSIL ECHINI FROM THE TERTIARY STRATA OF JAVA.

BY

Dr. K. MARTIN.

PROFESSOR OF GEOLOGY.

March 1880.

In the year 1854 J. A. Herklots published a description of the fossil Echini, which had been found by Junghuhn in the tertiary strata of Java, in the fourth part of a publication, entitled «Fossiles de Java." I have been occupied in working out the other groups of animals from these deposits, which by the death of Herklots was left unachieved. The results of my investigations have been embodied in the work entitled »Die Tertiärschichten auf Java", the palaeontological part of which has appeared a short time ago. I succeeded in demonstrating, that a considerable percentage of these fossils are yet represented in the recent fauna of the Indian Ocean, and for this reason I was astonished to find, that all the Echini, with only a single exception, were described by Herklots as new species. This induced me to undertake a revision of these species, which has indeed led me to results entirely different from his. Not only a large number, but by far the majority of all the wellpreserved individuals could be identified with species, which are still living in the Indian Ocean.

As the fossils have been fully described by Herklots in the publication mentioned above, a short enumeration of my diagnoses may suffice, with the exception of two fossils, which, curiously enough, Herklots has never mentioned. I may here remark, that Herklots' figures are often incorrect, showing either more or less than the fossils themselves, a circumstance which I am obliged to mention, in order to explain the discrepancies between those figures and the diagnoses, which I am about to give.

1. ***Phyllacanthus baculosa Ag.*** I cannot regard the fossil, which Herklots described as *Cidaris rugata* (l. c. pag. 3), although it is in an imperfect state of preservation, as distinct from this species. It is very probable, if not certain, that the spine figured Pl. I, Fig. 2 also belongs to the same species.

Cidaris halaensis d'Arch et Haime (Descript. des anim. foss. de l'Inde pag. 196, tab. 13, fig. 2) is indoubtedly closely allied to *Ph. baculosa Ag.*, although the minute miliaries, which cover the median interambulacral space, are less densely arranged, as far as the figure at least permits to judge. Still it may prove to be identical on comparison with the typical specimen.

2. ***Temnopleurus toreumaticus Ag.*** Herklots has established two species, *T. areolatus* and *T. caelatus* (l. c. pag. 4 a 5), which differ from the normal *T. toreumaticus* in some few respects. In *T. areolatus* the horizontal pits between the interambulacral plates of the same vertical row penetrate for a short distance into the contiguous plates of the adjacent row, causing the internal borders of these to take a forked appearance (Comp. Herkl. l. c. Pl. I. Fig. 5b). *T. caelatus* is distinguished from *T. toreumaticus* by having smaller primary tubercles. Now I have been able to examine a series of recent specimens of the last named species from Japan, in which the forked appearance of the internal borders of the plates is either absent or hardly conspicuous or well marked, and which show at the same time rows of smaller primary tubercles. I have no reason to doubt the

identity of these specimens with *T. toreumaticus*, the more so as the abactinal system, which is very well preserved in some of these japanese specimens, exactly corresponds to that of *T. toreumaticus*. For this reason I feel justified in regarding *T. areolatus* and *T. caelatus* as varieties of *T. toreumaticus*.

3. ***Pleurechinus javanus nov. spec.*** The test of this species is high, spherico-pentagonal. The ambulacral areas have more than half the width of the interambulacral areas. The poriferous zones are narrow, straight, with simple, unigeminal pores; three pairs of pores belong to one primary plate. There are deep pits along the horizontal sutures of all coronal plates. Vertical ridges unite the plates of the same row, bridging these intervals. As the plates gradually acquire greater width towards the middle of the test, the number of the vertical connecting ridges increases from one to three, five and even seven; the middle one (the primary ridge, corresponding in position to a primary tubercle) being always the strongest. When there are seven, the two widest apart are exceedingly small. On the ambulacral areas the connection of the plates is brought about, firstly by primary ridges corresponding as before to primary tubercles and situated exteriorly in the immediate neighbourhoud of the poriferous zone, secondly by secondary ridges. Of the latter there are never more than two, in accordance with the lesser width of the ambulacral areas. As all the connecting ridges of the coronal plates have the same direction, they give rise to a graceful system of parallel stripes, which cover the whole test.

In addition to the primary tubercles (situated on the middle of the plates belonging to the interambulacral areas and on the inner border of the poriferous zone on those plates, which belong to the ambulacral areas) we find on all the plates tubercles of the 2nd and 3d order, which however do not correspond to the secondary ridges. The actinal and abactinal systems are subcircular.

The dimensions of the largest of eight specimens examined are:

height = 17 mm.
diameter of basis = 24 mm.
» » abactinal system = 6 mm.
» » actinal system = 8 mm.

This fossil is so entirely different from the only recent representative of this interesting genus, *P. bothryoïdes Ag.* (from the Indian Ocean), that an enumeration of the specific differences may appear superfluous. On the other hand *Temnopleurus tuberculosus*, a *Pleurechinus* from the tertiary strata of India, which was described under that name by d'Archiac and Haime, is very nearly related to our javanese form. However in this indian fossil the number of the vertical ridges, which connect the widest plates of the interambulacral areas, is less, the rows of primary tubercles do not occupy the middle of these plates, whereas the number of smaller tubercles is at the same time diminished.

4. ***Stomopneustes variolaris Ag.*** It is impossible to distinguish *Heliocidaris variolosa Herkl.* (l. c. pag 5, tab. I, fig. 4) from this species, although Herklots pretends, that the javanese fossil differs: »par les rangées secondaires de gros tubercules sur les aires ambulacraires moins développées et par la forme conique à base parfaitement plane." A comparison of a series of recent specimens from this species, which is so common in the Indian Ocean and on the coast of Java, shows, that there is a considerable range, between which this species may vary, not only with respect to the development of the tubercles but especially to the form of the test. The basis is flattened in a varying degree, and I feel obliged to identify this fossil, however strong it may be flattened, with *S. variolaris Ag.* The axis of the test has the same obliquity as in the recent specimens.

5. ***Laganum multiforme nov. spec.*** The outline of the test is very variable, distinctly pentagonal with rounded angles or even nearly elliptical with hardly any reminescence of the polygonal form. The greatest diameter is in a line with the anterior extremities of the an-

terior pair of ambulacra. The test is very much flattened, its edge swollen; a strongly marked depression surrounds the petals. They are long and of equal length, lanceolate, nearly closed at the extremity. The pores, connected by distinct grooves, are closely packed together; there are five of them in a millim. The abactinal system is small, five indistinct ridges radiate from hence along the middle ambulacral area. The basis is flattened or indistinctely concave. The mouth is small and subcircular; so is the anus, although sometimes inconspicuously elongated in the direction of the longitudinal axis of the test; its distance from the border being about two or three times its diameter. The ambulacral furrows are indistinctly developed and extend about half the distance between the mouth and the angles of the test. The peristomal star is still more indistinct, sometimes even hardly visible. The primary tubercles are equal in size on the superior and inferior surface of the test and measure about $\frac{1}{3}$ of a mm.; on the inferior surface they are at a greater distance from each other, and on the border closely set. There are constantly fine granules between them. Genital openings as in *L. depressum*.

The pentagonal forms of this fossil are closely similiar to the last named species, they may however be immediately recognized by their larger tubercles and by the stronger depression surrounding the petals. They may further be distinguished by the less developed ambulacral furrows and peristomal star, although the same may be the case in certain varieties of *L. depressum*, which thereby show a greater similiarity with *L. multiforme*. Moreover in those specimens, where the anus is elliptical, the fact that its longest diameter is parallel to the longitudinal axis of the test and finally the circumstance, that the fossil does not attain the dimensions of the recent species, may serve to distinguish them from specimens of *L. depressum*. The dimensions of the largest specimen are:

length = 29 mm.
greatest width = 26 mm.

smallest width on the posterior border = 20 mm.
height = 4 mm.

6. ***Peronella decagonalis Ag.*** is indoubtedly identical with *Scutella decagona Herkl.* (l. c. pag. 9. tab. I, fig 6). The individual figured by Herklots appears to be distinguished from this recent species by the lesser elevation of the middle part of the superior surface; however another somewhat smaller specimen, measuring 33 mm. entirely corresponds to the typical *P. decagonalis* even in this respect, and so this deviation must be regarded as no more than a variety. The lanceolate shape of the petals is indeed different from the straightbordered petals of the large individuals of *P. decagonalis*; this however is a consequence of the different age of the specimens.

I can no more separate *L. angulosum Herkl.* (l. c. pag. 8, tab. 2, fig. 4) from *P. decagonalis* and likewise I take *L. rotundum Herkl.* to be the same species, as far as least as the bad condition of this last named fossil permits to judge.

L. tenuatum Herkl. (l. c. pag. 9, tab. I, fig. 7) is *perhaps* distinct from the above mentioned forms by its concave inferior surface. Only it is too insufficiently preserved to allow of a definite judgment.

7. ***Peronella orbicularis Ag.***, = *Laganum orbiculare Ag.* (Herkl. l. c. pag. 7, tab. 2, fig. 3), was rightly recognized by Herklots, as far as I can see; however Agassiz puts forward the possibility of this species being the young stage of *P. decagonalis Ag.* (Revision of the Echini Part. III, pag. 521). I believe this to be highly probable, especially on comparison of the young specimen, named by Herklots *L. angulosum*, with *L. orbiculare.* It is only the shape of the border, by which in this case a distinction might be effectuated, and as the different *Laganum*-species vary so considerably in this respect, it may not serve to distinguish species. Nevertheless I make separate mention of *P. orbicularis* and *P. decagonalis* because the superior surface of the fossil *P. orbicularis* is

in a too imperfect state of preservation to permit my forming a definite judgment on the point in question, as I am moreover not possessed of sufficient recent material for comparison.

8. ***Clypeaster humilis Ag.*** is represented by specimens, partly beautifully preserved, amongst the javanese fossils. It was described by Herklots as *Cl. latus* (l. c. pag. 6, tab. 2, fig. 1).

Echinanthus profundus d'Arch et Haime (Description des anim. foss. de l'Inde pag. 207) is indoubtedly identical with this species, as the character, by which they are said to be distinguished: »ses bords plus minces et ses pétals plus arrondis inférieurement et complétement fermés" are easily found as varieties among the specimens of *Cl. humilis*.

9. ***Echinanthus testudinarius Gray.*** The fossil which Herklots described as *Clypeaster tumescens* (l.c.pag.7, tab. 2, fig. 2) does not show the slightest difference, by which it may be distinguished from this recent species inhabiting the Indian Ocean, and of which the Leyden Museum also possesses specimens from Timor. Nevertheless the confirmation of my diagnosis by the aid of better preserved specimens seems desirable.

According to Duncan (Quart. Journ. Geolog. Soc. London 1877 XXXIII p. 46 u. 65) this fossil is also found in the tertiary strata of Australia, which is however denied by Mc. Coy, who describes the Australian fossil as *Cl. gippslandicus* (Prodromus of the Palaeontology of Victoria Dec. VI. tab. LIX).

10. ***Echinolampas oviformis Ag.*** Probably identical with *E. subangulata Herkl.* (l. c. pag. 10, tab. 3, fig. 4). The state of preservation, however, does not allow of a definite judgment, nor whether *Nucleolites minutus Herkl.* (l. c. pag. 10, tab. 5, fig. 8) must be regarded as the young stage of this species. The name *Nucleolites* can not be retained for this fossil.

d'Archiac et Haime have described from the tertiary strata of India *E. Iacquemonti*, which is said to be distin-

guished from *E. orientalis* and *E. oviformis* (which are synonymous) by their longer and less closed petals (Anim. foss. de l'Inde pag. 212). I have examined specimens of *E. oviformis Ag.*, which so closely agree with the figure given by d'Archiac and Haime (l. c. tab. 14, fig. 5), that I have no doubt *E. Iacquemonti* must be regarded as synonymous with *E. oviformis*.

11. ***Brissus declivis Herkl.*** is nearly allied to *B. carinatus Gray*.

12. ***Brissopsis luzonica Ag.*** *Brissopsis latior Herkl.* is identical with this species. *Verbeekia dubia v. Fritsch* (Eocänformation von Borneo, copie in »Jaarboek voor Mijnwezen" 1879 I, pag. 137, tab. 11, fig. 4) also appears to be synonymous as far at least as the incomplete preservation of the Bornean fossil permits to judge. Zittel (Handbuch der Palaeontologie pag. 541) had already united *Verbeekia* with *Brissopsis*.

13. ***Schizaster subrhomboidalis Herkl.*** is very closely allied to *Sch. ventricosus Gray*, which has been also found in a fossil state in Australia (Duncan, Quart. Journ. Geol. Soc. 1877, XXXIII, pag. 61 u. 68). A real difference between *S. ventricosus* and the javanese fossil is to be found in the outline of the last named species, which is more or less pentagonal in consequence of the stronger flattening posteriorly and the considerable widening of the middle of the test. Moreover the petals are more divergent in *S. subrhomboidalis*. The *fasciola peripetala* is widened out towards the extremity of the petals, especially anteriorly, as in *S. ventricosus*.

14. ***Pericosmus granulosus Herkl.*** = *P. rotundatus Herkl.* = *P. planulatus Herkl.* = *P. distinctus Herkl.* They do not show any differences, which might not be explained by the different state of preservation, of which Herklots has not taken sufficient note.

15. ***Pericosmus asperulatus Herkl.*** may be distinguished from the preceding species by a small difference in the course of the *fasciola peripetala*, which encircles the hinder petals not in a angularly bent, but in

a curved course. However the specific value is subject to some doubt, as the development of the *fasciolae* may vary to a certain, although rather limited extent in the same species.

16. ***Pericosmus altus Herkl.***

17. ***Breynia magna Herkl. spec.*** was described by Herklots as *Eupatagus magnus* (l. c. pag. 13, tab. 2, fig. 7). It is closely allied to *B. Australasia Gray*; it differs however from the recent specimens, which I have been able to examine, by the more strongly bent border of the test and the less conspicuous development of the secondary tubercles on the marginal superior surface. The course of the *fasciola peripetala* and of the *fasciola interna* is very indistinct, appears however to agree with that of *B. Australasia*. This justifies a separation from *B. carinata d'Arch et Haime* (Anim. foss. de l'Inde pag. 216, tab. 15, fig. 4). However, the fossil figured by Medlicott and Blanford as *B. carinata d'Arch et Haime* (Geology of India tab. 16, fig. 9) differs markedly from that, which d'Archiac and Haime have described under that name, and shows great affinity to the javanese fossil. For the present I do not feel justified to regard them as identical.

18. ***Maretia planulata Gray.*** *Spatangus praelongus Herkl.* and *S. affinis Herkl.* are identical with this species and could never be brought under the genus *Spatangus Klein*, as there are no primary tubercles on the posterior intrambulacral area. The distinct *fasciola subanalis*, which was neither noticed nor figured by Herklots, does not allow of an identification with *Hemipatagus Desor*, so that the javanese fossil can never be identical with *H. formosus Zittel* (Comp. Novara Expedition Palaeontologie von Neu-Seeland pag. 63). The state of preservation of the fossils is very sufficient and leaves no doubt as to their identity with *M. planulata Gray*.

19. ***Maretia? pulchella Herkl. spec.*** It was described by Herklots as a *Spatangus*, but must be separated from this genus for the same reasons mentioned above. Still

their identity with *Maretia* is subject to some doubt by the imperfect state of preservation. There is a distinct *fasciola subanalis*.

Those fossils described by Herklots, which are not mentioned above, are in such a bad state of preservation, that not even a generical diagnosis, much less a specific determination is possible, and so I feel obliged to leave them unnoticed, as they have no further value for the tertiary fauna of Java and its connection with the recent fauna of the Indian Ocean.

Our present knowledge of the fossil Echini of Java may be shown by Table I.

This table clearly shows, that, also with respect to the Echini, the recent fauna of the Indian Ocean may be traced up to the tertiary strata of Java [I have elsewhere attempted to prove this for Mollusca, Crustacea and Corals]. And further, that these tertiary strata, the age of which I am not yet able to fix with certainty, contain no fossils, which have also been found in extratropical tertiary deposits, so that even in the tertiary period the separation of the tropical oceanic fauna appears to have been quite as distinct as we find it in the present day.

In comparison to the other classes of invertebrate animals the percentage of the Echini found simultaneously in the tertiary strata of Java and yet living in the seas of these regions is considerable (See Table II).

NB. The localities indicated with [ ] in the fourth column of Table I are the same for those fossils, which follow in the fifth column among the nearly allied forms; as for the present it is not possible to decide, wether they are actually identical with the corresponding javanese fossils.

TABLE I.

Names.	Still living.	Allied recent species	Fossil in:	Allied fossil species.
1. Phyllacanthus baculosa Ag.	+	—	[India?]	Cid. halaensis d'Arch Haime. (India).
2. Temnopleurus toreumaticus Ag	+	—	—	—
3. Pleurechinus javanus Mart.	—	—	—	Temnopleurus (Pleurechinus) tuberculosus d'Arch Haime (India).
4. Stomopneustes variolaris Ag.	+	—	—	—
5. Laganum multiforme Mart.	—	L. depressum Less.	—	—
6. Peronella decagonalis Ag.	+	—	—	—
7. Peronella orbicularis Ag.	+	—	—	—
8. Clypeaster humilis Ag.	+	—	India.	—
9. Echinanthus testudinarius Gray	+	—	[Australia?]	Clyp. gippslandicus Mc. Coy. (Australia).
10. Echinolampas oviformis Ag?	+	—	India.	E. dispar v. Fritsch (Borneo).
11. Brissus declivis Herkl.	—	B. carinatus Gray.	—	—
12. Brissopsis luzonica Ag.	+	—	Borneo.	—
13. Schizaster subrhomboidalis Herkl.	—	S. ventricosus Gray.	—	S. ventricosus Gray. (Australia).
14. Pericosmus granulosus Herkl.	—	—	—	—
15. Pericosmus asperulatus Herkl.	—	—	—	—
16. Pericosmus altus Herkl.	—	—	—	—
17. Breynia magna Mart.	—	B. Australasia Gray.	[India?]	B. carinata d'Arch Haime. (India).
18. Maretia planulata Gray	+	—	—	—
19. Maretia? pulchella Mart.	—	—	—	—

TABLE II.

Summary of the number of fossil species found in the tertiary strata of Java.	Number of recent species identical with fossil ones.	Percentage.
Cephalopoda. 1	. . . . 0	 0
Gastropoda 160	. . . . 47	 29
Lamellibranchiata 74	. . . . 28	 38
Brachiopoda. 1	. . . . 0	 0
Crustacea 9	. . . . 6	 67
Echinoidea 19	. . . . 10	 53
Corallia 36	. . . . 4	 11
Foraminifera . . . . . 6 (Nummulinidae)	. . . . 0	 0
Total 306	. . . . 95	 31

NOTE XV.

ON A NEW VERY SMALL SHREW FROM MAYOTTE, CROCIDURA (PACHYURA) COQUERELII, POLLEN AND VAN DAM, MS.

BY

Dr. E. L. TROUESSART.

March 1880.

The *Insectivora* from Madagascar generally belong to forms which are quite distinct from each other, such as the genera *Centetes*, *Oryzoryctes*, *Geogale*, etc., and which have now become the types of separate families and subfamilies. Up to 1848 the large group of Shrews, *Soricidae*, was looked upon as not inhabiting either Madagascar or the little adjoining islands. At that time Mr. Ch. Coquerel, Surgeon in the French Navy, published a good description and figures of *Sorex madagascariensis* [1]), a very small Shrew, which he had discovered at Nossi-Bé, on the N. W. Coast of Madagascar. Later in 1855 Dr. Leop. Fitzinger briefly described as *Pachyura auriculata* [2]), a much larger Shrew brought home by Mad. Ida Pfeiffer from her travels in Madagascar. But this species does not differ in any essential character from *P. serpentaria* Is. Geoffr.,

---

1) Ann. des Sc. Nat. Zoologie, 3e Série, IX, 1848, p. 193. pl. 2.

2) S. B. der Math. Naturw. Class. der Kais. Akad. der Wiss. Wien, Bd. XXXI, 1855, p. 342; and Bd. LVII, 1868, p. 145 (separata, sub tit: Kritische Unters. über Spitzmäuse, etc. Ie Abth. p. 25.

a Shrew not uncommon in India and Ceylon, which also inhabits Mauritius (Ile de France) where it was imported by vessels. It has most probably been brought to Madagascar in the same way. As to *Sorex madagascariensis* Coquerel, a species very distinct from all others, already known, the case is quite different. This species together with *Sorex etruscus* Savi, from South-Europe and North-Africa, with *S. gracilis* de Blainv., from South-Africa, and with the species about to be described, constitutes a small group of diminutive forms in the subgenus *Pachyura*. This group is apparently limited to the Occidental part of the Ethiopian region and includes the smallest Mammals hitherto known.

CROCIDURA (PACHYURA) COQUERELII n. sp.

Color of the fur quite uniform: above and beneath light rufous brown, each hair being sandy-grey near its base and tipped with shining red, by no means paler inferiorly.

The size and proportions of the body, the shape of head and tail agree with those of *C. (P.) etrusca*; only the color and the teeth are different.

Measures of the only specimen preserved in alcohol.

	m. m.
Total length	67
Head and body	40
Tail	27
Tip of snout to eye	5
Eye to ear	3
Breadth of ear	4
Vertical opening of earconch	5
Height of earconch backwards	2
Longest whiskers	13
Hind foot	7
Skull (appoximatively)	12
Head with its skin	14

Head large; nose terminated by a little blackish bare

muzzle; whiskers pale sandy; large rounded ears with internal valves well developed, blackish and sparingly clothed with short rufous hairs, longer on the edges of the earconchs and of the valves. Feet hairy down to the yellowish claws, which are even surpassed by the hairs; sole of the hind foot bare up to the heel and blackish. Tail tetragonal, strong, not swollen at the base, but gradually tapering towards its extremity, covered with close rufous hairs above and below, with a few longer hairs on the level of each vertebra.

Dentition: 30 white teeth of which 4 little upper intermediate ones (unicuspids of Mr. Elliot Coues), viz: 2 lateral incisors. 1 canine and 1 premolar on each side (S. G. *Pachyura* de Sélys).

Dental formula of E. Brandt: I. $\frac{2+4}{2}$, C. $\frac{2}{2}$, M. $\frac{2+8}{2+6}$ $= \frac{18}{12} = 30$ teeth.

Upper jaw (covered by its mucous membrane). — First large incisor long and crooked, its fore point rises considerably above the level of the posterior cusp, which is sharp and forms an acute angle with the second lateral incisor (1st intermediate of authors). The latter tooth is large, its point reaches as low as the fore point of the first incisor; third incisor and canine (2d and 3d intermediates of authors) both small and alike, hardly exceeding the gum; canine separated from the first molar by an intermediate space. The rudimentary premolar (4th intermediate of authors) not contiguous with the canine, but situated internally to the tooth-row, very small and hardly visible even with a lens. It is situated backwards and inwards of the first large molar, in the hollow between the anterior process and the chief cusp of this tooth, distant from the canine as far as the antero-posterior diameter of this tooth and wholly invisible externally. The first molar very large, lengthened, its fore cusp nearly flat, hardly raised above the gum, its median

cutting-cusp almost solely constituting the external surface of the tooth, directed backwards, and the posterior point forming only the extremity of the hind edge of the chief cusp. When looked upon from above this tooth is triangular with a long process directed forwards. The second molar is provided with a very large internal median prism reaching as low as the chief point of the first molar.

Lower jaw. — The two large incisors are raised at their extremity and divergent, leaving between their tips a distance equal to their own diameter.

Habitat: Mayotte, N. W. Coast of Madagascar, where it was collected by Pollen and v. Dam, now deposited in the Leyden Museum and labelled by them »*Sorex coquerelii*, n. sp.?"

I owe the communication of this interesting Shrew to the courtesy of Dr. F. A. Jentink, who has kindly authorised me to describe it. *Crocidura (P.) coquerelii* is remarkable among all the other Shrews for the uniformity of the color of its fur, which is truly and absolutely »*unicolor*" and »*concolor*," certainly an exceptional case among Mammals and especially *Soricidae*. It is impossible to confound this new species with any species hitherto described.

Crocidura (P.) gracilis de Blainv. of South-Africa differs from it in having the tail stouter at the root and down to the first third of its length; by the smaller ear-valves and by the reddish-brown chestnut color of the fur being paler on the inferior parts.

Crocidura (P.) madagascariensis Coquerel differs by its slender body, smaller head, thinner tail and grey-brownish color, paler beneath. Finally *Crocidura (P.) etrusca* Savi, although closely allied to it differs by its color being grey washed with reddish above, lighter on the sides, becoming whitish on the cheeks, belly, underparts of tail and feet.

Crocidura (P.) coquerelii, besides, differs from the three preceding species by its small rudimentary premolar (4th upper intermediate), which is separated from the canine

by an interspace and implanted much more backwards and inwards than in any known species of the subgenus *Pachyura*. The first large molar has a triangular base longer than wide, whilst in the other species this tooth is nearly as large as long (as in *P. etrusca*), or even exhibits an almost square cingulum (in *P. madagascariensis*). This disposition of the teeth agrees with what is found, although on a larger scale, in the largest Shrew of India, *Crocidura (P.) coerulescens* Shaw = *Cr. (P.) indica* E. Geoffr., but is even proportionally exaggerated in our small species; whilst in all the very small *Pachyura* of India, the rudimentary premolar, contiguous with the canine, although not infrequently internal to the tooth-row, *is always partially or wholly visible exteriorly*. And so the large *Pachyura coerulescens* of India seems more closely allied to the very small *Pachyura* of the African and Malagasy Fauna than to the small species of the Indian or Oriental region.

Again it is worthy of notice, that not one species of a size so very small is recorded as inhabiting East Africa, amongst the numerous Shrews hitherto known from Mozambique, Zanzibar and Mombaça, most of which were described by Professor W. Peters. [1])

Villevêque, 16 March 1880.

---

1) It may here be mentioned that this naturalist has described, in the year 1869, — see Baron C. C. von der Decken's Reisen in Ost-Africa, Bd. III, Abth. 1, p. 10 — a shrew of a much larger size, belonging to another subgenus: *Crocidura albicauda* Peters; which was brought home from the Island of Angasilia (Comores). And so (this Shrew included) there are known three *Soricidae* which are peculiar to Madagascar; and it seems that they are confined to the small archipelagoes (Nossi-Bé, Mayotte, Comores) situated N. E. of the large island. This region of the Madagascar Fauna approaches more closely to the Fauna of the African continent than any other. (E. L. Trouessart.)

NOTE XVI.

ON AN UNDESCRIBED SPECIES OF BLACK-LEGGED MEGAPODE, MEGAPODIUS SANGHIRENSIS.

BY

H. SCHLEGEL.

March 1880.

Siao and Sanghi (the two principal islands of the Archipelago of Sanghi, which forms a kind of link between Celebes and Mindanao) produce a species of Megapode, which is allied to Megapodius cuminghi from the Philippines, Megap. gilberti from the Northern parts of Celebes, Megap. lowii from North-West Borneo, and Megap. forsteni from Ceram, Amboina and Bourou; but which differs from all these species in a way sufficiently notable to justify its claim to the rank of a separate species.

The Philippine bird is at once distinguished from the other above mentioned species by its superior size. The bird of Sanghi, inferior in size to that of the Philippines, is, on the contrary, larger than Megap. lowii and gilberti, and even somewhat larger than Megap. forsteni.

The system of coloration presents the following modifications from that of Megap. lowii, gilberti and forsteni. The slate-gray of the throat and the underside of the body is tinged with dark brown, whereas the upper surface of the head and of the body behind the mantle is tinged with a rusty, and not with an olivaceous color.

Wing 8 inches to 8 inches 5 lines (french foot). Tarse $2^1/_3$ to $2^1/_2$ inches.

The Museum posesses since 1866 six specimens of this species of Megapode. They were partly collected by our traveller, Mr. Hoedt, partly presented by Mr. van Duyvenbode.

A monographic review of the tribe of Megapodes being prepared by me for the work entitled „Muséum des Pays-Bas," I refer to this publication for more ample details on the different species in question.

NOTE XVII.

NEW SPECIES OF EUROPEAN NEMERTEANS.

First Appendix to Note XLIV, Vol. I.

BY

Dr. A. A. W. HUBRECHT.

In the above-mentioned note, published six months ago, several new species of Nemerteans were described and at the same time an attempt was made to a classification of the group, which should be in accordance with the results arrived at through the comparative study of a more extensive number of species and genera than had been at the disposal of any of my predecessors.

I am indebted for this plentiful supply of working-material to the constant support of Prof. Ant. Dohrn and his assistants, and I feel especially obliged for their kindness in forwarding to me — either alive or in excellent state of preservation — further specimens for comparison or determination ever since my departure from Naples.

It is my intention to publish the descriptions of new or interesting Nemerteans, which may come to my notice, in the form of this first appendix, reserving the anatomical and histological results arrived at, for publication elsewhere.

The suborder of *Palaeonemertini*, which I established for the genera: *Carinella*, *Cephalotrix*, *Polia* and *Valen-*

cinia, embraces forms which are perhaps not so closely related to each other as are all the *Schizonemertini*, with which they were amalgamated in Max Schultze's subdivision of the *Enopla*, but on the other hand they are all of them as decidedly different from these as they are from the *Hoplonemertini*. Whereas *Cephalotrix* and *Carinella* must be looked upon as Nemerteans in which a more primitive stage of differentiation is retained (nervous system, proboscis, genital chambers), *Valencinia* and *Polia* represent types which have already become further developed and of these *Polia* seems to approach, by certain well-marked characteristics, to the *Hoplonemertini*. Of these characters I must mention one in particular: the curious, comb-like arrangement of the numerous small grooves in the epidermoidal tissues of the head, which together constitute the system of respiratory furrows. The ciliated respiratory duct, leading into the nervous tissue (vide: Zur Anatomie und Physiologie des Nervensystems der Nemertinen, by the author of this paper in: Verhandelingen van de Koninkl. Akademie van Wetenschappen, Vol. XX, Amsterdam 1880) does not communicate with the exterior by a simple circular opening — as it does in *Valencinia* — nor does it open at the bottom of a deep, longitudinal and richly ciliated furrow (as in the *Schizonemertini*), but it terminates exteriorly in a transverse groove, which encircles the head, with the exception of a small interruption in the median line of the dorsum. Numerous short grooves, all directed towards the anterior extremity of the animal, take their origin from this transverse furrow and are quite as strongly ciliated. The same arrangement occurs in the two highly differentiated genera of armed Nemerteans: *Amphiporus* and *Drepanophorus*, which in so many respects are however entirely different from *Polia* and all other *Palaeonemertini*. In *Polia curta* (young specimen) I counted about sixty, in *Polia minor* twenty-four of these secondary grooves. In no other genus of Palaeonemerteans I could as yet observe a similar arran-

gement, *Valencinia* having — as mentioned above — a simple, strongly ciliated opening to this duct, *Carinella* not being possessed either of a third posterior ganglionic lobe, nor of a duct leading into the nervous tissue, although exteriorly a simple transverse furrow in the epiderm may be detected and finally *Cephalotrix*, showing no trace at all either of external furrow, duct or posterior brain-lobe.

By these characters there appeared to be two principal modifications of structure among the genera belonging to the *Palaeonemertini*: on one side *Cephalotrix* and *Carinella*, on the other side *Valencinia* and *Polia*. The two latter genera were higher differentiated, and of these *Polia* showed certain unmistakeable affinities to the *Hoplonemertini*.

Curiously enough one of the species about to be described, unexpectedly bridges the interval existing between *Carinella* on the one hand and *Polia* on the other, at the same time proving the suborder of the *Palaeonemertini* to be a natural arrangement, which is in accordance with the real affinities of the species therein contained. The new species, for which I propose the name of:

Carinella inexpectata n. sp.

has more the external appearance of a *Polia* than of a true *Carinella*, the head not being by any means widened out anteriorly into the more or less spade-like shape which it assumes both in *Carinella annulata* and *Carinella polymorpha*. Moreover a closer inspection reveals a lateral opening on both sides of the head, situated in the middle of a transverse groove which ventrally appears to coalesce with that of the other side, whereas dorsally it extends to close up to the median line. This transverse groove is provided with a set of small secondary grooves in the way described above for *Polia* and the *Hoplonemertini*. On the dorsal surface about six of these

secondary grooves are visible on each side, others being situated laterally in the vicinity of the external opening of the ciliated duct. On compression the brain was visible by transparency and appeared similarly shaped to that of *Carinella annulata*: a simple thickening of the lateral nerve-cords, ventrally united by a stout commissure. The dorsal commissure was not visible under these circumstances, nor was there any trace of a third (posterior) pair of lobes to the ganglion.

Microscopic sections clearly proved this apparent resemblance with *Carinella* to be confirmed by the internal organisation of the animal. As in that genus the lateral nerve-trunks are situated quite exteriorly to the muscular body-wall and so are the cerebral lobes. These latter are only the enlarged anterior portions of the lateral trunks. Histologically the nervous system closely agrees with that of *Carinella annulata*. An important difference however is situated in the ciliated canal, which commences at the above mentioned lateral opening and penetrates into the cerebral lobes, terminating in the midst of the nerve-cells. The presence of this canal, the physiological and morphological signification of which was fully discussed elsewhere [1]), gives an unexpected importance to this species, which henceforth must be regarded as intermediate between the more primitive (Carinella) and the more developed genera (Polia) of *Palaeonemertini*, the latter of which, by certain affinities distantly tend towards the highest differentiated forms of Nemerteans, the *Hoplonemertini*.

The colour of the specimen was red with a brownish hue. It measured $3^1/_2$ Cm. Under the microscope some faint transverse interruptions of the uniform pigment were visible, encircling the body.

Still it can never be confounded with young specimens of *Carmella annulata*, even on superficial inspection.

Habitat: Capri.

---

1) L. c. Verh. der Kon. Akademie, Amsterdam. 1880.

Another new species from the Bay of Naples belongs to the suborder of *Schizonemertini*. I may be allowed to dedicate it to the able manager of the Laboratory at Naples, to whose kind assistance I am indebted for so much valuable material.

Cerebratulus eisigii n. sp.

May be distinguished from all other species of the same genus by its proboscis, which is longitudinally striped. Generally the proboscis is white or of a very faint reddish hue, *Cerebratulus hepaticus* shows some broad and some thinner dark brown transverse bands near its implantation but a species with longitudinal stripes along the proboscis was not known as yet. Moreover the coloration differs from that of other species, the animal being of a wholly uniform dark olive green, even inclusive of the tip of the head. Only the inner surface of the respiratory clefts is white and so when these are closed a faint white bordering line betrays their position. Posteriorly the colour of the specimen examined was somewhat more mixed up with a reddish tinge.

The ground-colour of the proboscis is a light dirty green, the longitudinal stripes are dark brown and not quite straight but with very faint zigzag bends. Emanating from each angle of this zigzag line a very short transverse streak, vertical to the direction of the longitudinal stripes and about half as long as its own distance from the next transverse streak, was visible with the microscope.

The specimen was not entire and so its exact length could not be determined, nor whether a short caudal appendage was present.

Its width was about 4 mm. in a line with the mouth, the length of the mouth 3 mm., that of the respiratory slits $4^1/_2$ mm.

Urticating elements, of which the body measures about 15 μ, the thread up to 35 μ are present in the cellular coating of the proboscis.

The live specimen was sent over from Naples in February 1880.

NOTE XVIII.

THE SPONGES OF THE LEYDEN MUSEUM.

I. The family of the Desmacidinae.

BY

G. C. J. VOSMAER.

The Leyden Museum of Natural History possesses a collection of Sponges, which have never as yet been thoroughly examined nor classified in accordance with the progress, which has lately been made in this branch of science.

And so it was with much pleasure that I accepted the honourable task of determining and arranging this collection, being at the same time convinced of the necessity of treating the different groups separately.

In the following paper I propose to treat of the family of the *Desmacidinae*, siliceous Sponges which by their anchors, bows and bihamate (S- shaped) spicules form a very distinct group.

Generally speaking the determination of Sponges affords peculiar difficulties. Almost every species varies considerably: it is very rare that a Sponge forms a so called „good species." Even with the aid of Haeckels' splendid monograph one very often remains in doubt about the name of certain species of calcareous Sponges. This is still more the case with siliceous Sponges, the literature of which is so widely spread in different periodicals.

Unluckily the confusion has been increased by the fact that two great monographs were in preparation at about the same time, one in England and one in Germany. Bowerbank, who had long since published studies on Sponges in the Annals and Magazine of Natural History, and in the Transactions of the Royal Society, qualified by himself, as „desultory observations on their structure", completed these studies by the publication of the first volume of the „Monograph of the British Spongiadae" in 1864.

Meanwhile „Die Spongien des Adriatischen Meeres" by Oscar Schmidt had appeared in 1862. Bowerbank however entirely ignores this paper, even in the second volume of his monograph (published 1866.) Only in the preface of the third volume (1874!) Schmidt's work is mentioned. And in what manner?! Oscar Schmidt is indeed justified in complaining of this negligence. Schmidt [1]) seems to be right in presuming that Bowerbank did not sufficiently understand the German language. The introduction to the third volume of Bowerbank's Monograph, compared with the introduction to Schmidt's latest work will soon convince one of the truth of this statement.

The value of Bowerbank's book consists in the great number of facts, although separate and inconsistently arranged. Bowerbank divides the siliceous Sponges into seven groups, according to the arrangement and direction of the spicula, Schmidt considers them more in general, with regard to their mutual relation, their genealogy. And thus Schmidt's system is based upon better, at least upon more natural principles. Bowerbank simply gives a description of species, not to say of individuals, and arranges the species in genera, families etc.; Schmidt on the contrary strives towards a classification which shall show their derivation and relation. On account of these and other considerations I propose to follow the system of

1) Die Spongien des Meerbusen von Mexico. 1879.

Schmidt, which is nowadays generally adopted. The foundations of the building which Schmidt is in the course of erecting are much more firm and strong than those of Bowerbank. If we go on building upon the foundations which Schmidt has laid, certain changes and alterations will always have to be made;.... did not the builder himself often give the example?... but these will not endanger the solidity of the whole structure. And so the system of Oscar Schmidt is the trunk on which that of Bowerbank, and likewise that of Carter and others ought to be grafted, and not inversely.

The system of Schmidt, however, is not followed in England; and has even been rejected and replaced by other arrangements. Thus Gray made another, which certainly was not very satisfactory, but still he always stuck to it.

Carter too, of whom it might be supposed that he would follow the principles of Schmidt, made still another classification, and is now, I believe, occupied in arranging and describing the Sponges of the British Museum, in accordance with his own system. Only one man in England, Sir C. Wyville Thomson, has declared himself in favour of Schmidt's views! In his paper on the Vitreous Sponges [1]) he says: „I think that certainly the most satisfactory arrangement of sponges is that proposed by Dr. Oscar Schmidt", and further on: „The only classification which has any material advantage over the older classifications of Nardo, de Blainville, Johnston and Lieberkühn, seems to be that of Dr. Oscar Schmidt. Duchassaing and Michelotti, Bowerbank and Gray have each made valuable individual suggestions; but Dr. Schmidt's grouping, taken as a whole, appears to be the most in accordance with our knowledge of the anatomy and physiology of the class."

On the continent, however, the opinions expressed by Prof. Wyville Thomson are more generally accepted. Most

1) Ann. a Mag. 1868. I. p. 114 cet.

Spongiologists follow the system of Schmidt. *As a principle* at least, for Schmidt himself has made several changes, Wyville Thomson has made „slight modifications" [1]), and Zittel proposed many very practical ameliorations.

In the following pages I propose to describe and enumerate the species of *Desmacidinae;* this family is taken in the sense proposed by Schmidt in 1870 [2]). Nevertheless I have added the genus *Clathria* for reasons to be explained in due time.

One word to explain the abreviations, which are made use of in the descriptions of the species. In order to facilitate the comparison of different species, I have long since tried to indicate the spicules of the siliceous Sponges by means of formulas or signs, which were based upon the fundamental forms of the spicula, proposed by Schmidt [3]) viz. monaxial, tri-axial, tetraxial and polyaxial.

The *Desmacidinae* only possess monaxial spicules: different kinds of smooth and spined rods [4]) and bows, and bihamate spicules. These few forms are indicated by the following signs: tr. (*tr*uncatus) = blunt, ac (*ac*utus) = sharp, pointed. Thus tr. ac. means: blunt at one end, pointed at the other. If the former is distinctly swollen, an ° is put on the tr., for instance tr°. ac If both ends are blunt it must be tr. tr, or when at the same time they are equal tr^2.; f(*f*usiformis) added to a sign means: swollen in the middle; sp(*sp*inosus) added to a sign means: spined, thorny. Anc(*anc*hora) = anchor. When the number of the teeth can be distinguished the number of these can be added.

And so we have:

tr. ac. = acuate (= „Stifte" = „Stumpf-spitz.")

---

1) Ann. and. Mag. 1868 I p. 110.

2) Grundzüge einer Spongien Fauna des Atlantischen Gebietes: pag. 52.

3) Ibid. p. 2.

4) It is perhaps practical to designate by this word those spicules of which the type is a simple rod (Stabnadel of the Germans, linear skeleton-spicula Crtr.).

ac^2 (ac. ac.) = acerate (= „spitz-spitz" = „umspitz.")
ac^2f = fusiformi-acerate (= „Spindel.")
tr°. ac. = spinulated = pin-shaped (= Stecknadel.")
$tr^{\circ 2}$. = biclavated cylindrical.
tr. ac. sp. = spined spiculum (= „Knotennadel.")
$\wedge$ = tricurvate acerate = bow (= „Bogen.")
$\curvearrowright$ = simple, reversed or contort bihamate, exter-and interumbonate, abbreviated bihamate S-shaped etc. It seems to me more practical to unite all these, as they are only modifications of one type (= „Spangen" = sigmoid spicula").
$\curvearrowright\!\!\!\!\curvearrowright$ = trenchant bihamate.
anc^2. 2 (anc^2. 3) = bidentate (tridentate) equianchorate (= „zwei, dreizähnige Doppelanker.")
rut^2. = dentato-palmate equianchorate, palmated equianchorate etc. (= „Doppelschaufel") [1]).
rut. rut. = id. inequianchorate etc. (= „Pantoffel.")

It is not here the place further to insist upon the practical advantages of this system of formulas; but I intend to do so soon, and to work it out more completety.

We can now pass to the enumeration and description of the species, which have at present been introduced into literature, as far as I have been able to find. The species, of which there are specimens in the Leyden Museum will be marked with *. The following list is but a *provisional* one; as soon as possible I hope to publish a more extensive memoir on this subject, with the indispensable illustrations of the new species. I must also refer to this paper, which is yet in preparation, for further explanation of the reasons which have led me to identify several species.

---

1) *Rutrum* = trowel.

ORDO MONACTINELLIDAE ZITT.

Monaxial siliceous spicules.

FAMILIA DESMACIDINAE O. S.

Char. emend. Vosm.

Bianchorate spicules, either accompanied or replaced by bow sor (and) bihamate (S-shaped) spicules. Smooth and spined rods, considerably varying in shape, are always present.

GENUS I. DESMACODES O. S. 1870.

In addition to the rods there are only bows or bihamate spicules, no anchors.

1. ***Desmacodes subereus*** O. S. 1870.
   Litt. Schmidt, Spong. Atl. G. pag. 54. without illustr.
   Spic. tr. ac.
   tr°. ac.
   ac^2.
   ∽
   Loc. Portugal.
2. ***Desmacodes Peachi*** (Bwk.) Vosm.
   Synon. Desmacidon Peachii Bwk. '74
   Litt. Bowerbank. M. Br. Sp. II p. 349, III p. 163.
   Spic. tr°. ac.
   ac^2.
   ac^2. f. ?
   ∽
   Loc. Shetland.

3. ***Desmacodes corrugatus*** (Bwk.) Vosm.
Synon. Halichondria corrugata Bwk. '66.
? Halichondria inornatus Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 242, III pag. 105.
Bowerbank. M. Br. Sp. II pag. 271, III p. 119.
Spic. tr°. ac.
tr°. ac. f.
ᔕ
Loc. Hastings, Isle of Man, Isle of Herm, Shetland.

4. ***Desmacodes candidus*** (Bwk.) Vosm.
Synon. Halichondria candida Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 251, III p. 109.
Spic. tr. ac.
tr. ac. sp.
ᔕ
Loc. Guernsey.

5. ***Desmacodes varians*** (Bwk.) Vosm.
Synon. Hymeniaciden variantia Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 174, III p. 113.
Spic. tr. ac. (often flexuous.)
ᔕ (large and small ones)
Loc. Tenby.

6. ***Desmacodes pulchellus*** (Bwk.) Vosm.
Synon. Halichondria pulchella Bwk.
Litt. Bowerbank. M. Br. Sp. II p. 256, III p. 116.
Spic. tr. ac. sp.
tr^2. sp.
ᔕ
Loc. Guernsey.

7. ***Desmacodes fibulatus*** (O. S.) Vosm.
Synon. Reniera fibulata O. S. '62.
? Halichondria Couchii Bwk. '74
? Halichondria elegantia Bwk. '75.
? Halichondria varia Bwk. '75.
? Isodictya virgata Bwk. '75.
Litt. Schmidt. Sp. A. M. p. 73.
Schmidt. Sp. A. G. p. 40.—

Bowerb. M. Br. Sp. III p. 198 and 203.—
Bowerb. Proc. Z. Soc. p. 286 (without illustr.)
Bowerb. Ibid. pag. 292.—
Bowerb. Ibid. pag. 294. (without illustr.)

Spic. ac^2.

∽

Loc. Triest. Coast of Portugal.
Cornwall. — Straits of Malacca.

In the „Grundzüge einer Spongien Fauna des Atlantischen Gebietes," it seems that Schmidt also wishes to bring his *Reniera fibulata* under the *Desmacidinae*. In such case it is evident that the Sponge must be a *Desmacodes*. Probably Bowerbank's *Hal. Couchii* is identical with it. Bowerbank says in the description of his *Hal. elegantia* that »the nearest allied species is *Hal. Couchii*..... Fortunately the abundance of bihamate retentive spicula in *Hal. elegantia* and their complete absence in *Hal. Couchii* renders the discrimination of the two species easy and certain." But in his description of *Hal. Couchii*, he says that is has: „retentive spicula simple and contort, bihamate, minute and slender;" he adds however „not very numerous." And so the difference between the two species seems to be a quantitative, not a qualitative one. As Bowerbank gives no illustration of his *Hal. elegantia* it must however remain doubtful for the moment.

8. ***Desmacodes cavernulus*** (Bwk.) Vosm.

Synon. Desmacidon cavernula Bwk. '74.
Litt. Bowerb. M. Br. Sp. III p. 268.
Spic. tr. ac.
tr. ac. f.

∽

Loc. Shetland.

9. ***Desmacodes intextus*** (Crtr.) Vosm.

Synon. Microciona intexta Crtr. '76.
Litt. Carter. Ann. a Mag. 1876. XVIII p. 218.
Spic. tr. ac. sp.

∽

Loc. Near Cape St. Vincent in 374 fathoms.

10. ? ***Desmacodes pusillus*** (Crtr.) Vosm.
Synon. Microciona pusilla Crtr. '76.
Litt. Carter. Ann. a. Mag. 1876. XVIII p. 239.
Spic. tr. ac. („bent portion has a tendency to a spiral twist.")
ᔓ (?)
Loc. „Probably from the Tropics."
In describing this species, Carter places a note of interrogation after „bihamate spicules." And therefore, it being as yet uncertain if bihamates really do occur, I am not sure that the Sponge is a Desmacidine. In the explanation of the plates there is a mistake. Instead of *Micr. pusilla* we find *Microciona minutula.*

11. ***Desmacodes angulatus*** (Bwk.) Vosm.
Synon. Halichondria angulata Bwk. '66.
Isodictya fallax Bwk. '66.
Litt. Bowerb. M. Br. Sp. II p. 233, III p. 101.—
Bowerb. M. Br. Sp. II 302, III p. 132.
Spic. ac^2. (two kinds.)
∧
Loc. Guernsey.

12. ***Desmacodes seriatus*** (Grant) Vosm.
Synon. Ophlitaspongia seriata Bwk. '74.
Chalina seriata Bwk. '66.
Halichondria seriata Johnst. '42. (acc. to Bwk.)
Spongia seriata Grant. '26. (acc. to Johnst.)
Litt. Bowerb. M. Br. Sp. III p. 167.
Norman. Ann. a. Mag. 1869. III p. 298.
Bowerb. M. Br. Sp. II p. 367.
Schmidt. II Suppl. p. 10.—
Johnston. Br. Sp. p. 125.—
Grant. Edinb. Phil. Journ. XIV p. 116.
Spic. tr. ac. f.
tr^2. ac.
∧

Loc. Frith of Forth, Tenby, Jersey.
Tobermory.

13. ***Desmacodes laevis*** (Bwk.) Vosm.
Synon. Microciona laevis Bwk. '66.
Litt. Bowerb. M. Br. Sp. II p. 127, III p. 59.
Schmidt. Sp. Atl. G. pag. 76.
Gray. Ann. and Mag. 1868. I p. 163.
Spic. tr. ac. (two kinds).
tr. ac. sp.
$\wedge$
Loc. Shetland.

According to Schmidt (l. c.) it is a *Desmacidine*. If this be true, and I think it is, it can be no other than a *Desmacodes*.

14. ***Desmacodes pumilio*** (O. S.) Vosm.
Synon. Desmacella pumilio O. S. '70.
Litt. Schmidt. Sp. A. G. pag. 53. (no illustr. of the spicules).
Carter. Ann. and Mag. 1874. XIV. p. 250.
Spic. tr°. ac.
$\subset\!\supset$ (according to Carter.)
$\wedge$ (acc. to Carter.)
Loc. Florida, 324 fathoms. Atl. Ocean.

15. ***Desmacodes vagabundus*** (O. S.) Vosm.
Synon. Desmacella vagabunda O. S. '70.
Litt. Schmidt. Sp. A. G. pag. 53. (without illustration).
Schmidt. Erg. N. F. pag. 117. (without illustr.).
Spic. tr°. ac.
ac^2 (var. annexa).
$\subset\!\supset$
Loc. Florida, 98—145 fathoms. S. W. from Bukenfjord; 106 fathoms.

The variety *annexa*, characterized by the presence of ac^2 is also found near Florida. Is it not better to regard this variety as a distinct species, as Schmidt did in 1870?

16. ***Desmacodes involvens*** (O. S.) Vosm.
Synon. Myxilla involvens O. S. '64.
Litt. Schmidt. I Suppl. pag. 37.

Spic. tr. ac. sp. (tr°. tr. sp.)
tr°. ac.
∧
Loc. Lacroma.

Schmidt does not speak of anchors; nor could I find them, even in the original specimen. The bows are numerous enough.

Genus II. Desmacella O. S. '70. S. Str.

In addition to the rods, only bows and trenchant or strongly recurved bihamate spicules, no anchors.

1. ***Desmacella Johnsoni*** O. S. '70.
Synon. Hymedesmia Johnsoni Bwk. '64. (acc. to Schmidt).
Litt. Schmidt. Sp. Atl. Geb. pag. 53.
Schmidt. Erg. N. F. pag. 117.
Bowerbank. M. Br. Sp. I. p. 247.
Carter. Ann. a. Mag. 1874. XIV. p. 246.
Spic. ac^2.
ᔕ (trenchant bih. and strongly bent bih.).
∧ (accord. to Carter, not in the specimen given by Bowerbank, but frequently in another specimen from Madeira).
Loc. Florida. N.W. from Hougesund, (106 fathoms). Madeira.

2. ***Desmacella falcula*** (Bwk.) Vosm.
Syn. Halichondria falcula Bwk. '74.
Litt. Bowerb. M. Br. Sp. III p. 207 and 208.
Spic. tr. ac.
ᔕ (trenchant bihamate).
Loc. Shetland.

Genus III. Amphilectus. Nov. Gen.

Rods smooth or spined. Anchors bi-or tri-dentate, or palmato-dentate, equi-or inequiended. Neither true »keratode-fibre" as in Desmacidon, nor total absence of it as in the slimy Myxilla.

The numerous points of conformity between the genera

Desmacidon and *Myxilla* on one side, and between the genera *Esperia* and *Desmacidon* on the other side, are the cause that the systematic arrangement of these genera presents considerable difficulties. Between the two former, as well as between the two latter we observe gradual transitions. There are plenty of species that can be arranged under either of the two genera. So for instance it may be either *Esperia anceps* O. S. or *Desmacidon anceps* O. S. In the „Zweite Deutsche Nordpolarfahrt"[1]) Schmidt says: „Ich habe in meinen letzten Arbeiten die protensartige Gattung *Desmacidon* einigermaassen zu begrenzen versucht, jedoch mit dem Zugeständniss, dass sie nur ganz künstlich gegen die ältere Gattung *Esperia* abgespert werden kann." Even the characteristic Esperia-anchors are not always a good criterion for the difference between the two genera. *Desmacidon anceps* O. S. '74 is however not the only example. We have further *Esperia lanugo* O. S. '75, *Esperia titubans* O. S. '70. *Rhaphiodesma Parishii* Bwk. '75 and many others which show a considerable instability in the form of their anchors. Nor is the difference between *Desmacidon* and *Myxilla* a distinct one. Schmidt himself says of his *Desmacidon caducum* that it may either be placed under *Myxilla* or under *Desmacidon*.

Although, there are numerous transitions from *Esperia* to *Desmacidon*, and from this to *Myxilla*, nevertheless it is easy enough to distinguish the true *Desmacidon's* from the true *Esperia's* or *Myxilla's*. So, having the choice either of uniting all these forms in one very large genus showing gradual transitions between the extremes, or of retaining generic subdivisions, I think it to be advisable, from a simply practical point of view, to bring, the *indisputable* forms under one of these three genera, and the others to *Amphilectus*[2]) nov. gen. I consider this genus *Amphilectus*

1) Pag. 430.

2) ἀμφίλεκτος, dubious.

as the yet living stock of *Esperia*, *Desmacidon* and *Myxilla*, in which the distinctive character of either of those, has not yet made its appearance. We have here, so to say, the materials, that may yet prove to be useful in the struggle for life. So for instance: the skeleton can be strengthened by keratode-fibre, and in this way a *Desmacidon* would appear; the varying achors of *Amphilectus* become equiended in *Desmacidon* and *Myxilla*, inequiended in *Esperia*. Even though we cannot at first understand, why it should be more useful for a Sponge to have inequiended anchors than equiended ones, or the contrary, still we may suppose that in some way or other there is a certain benefit attached to it.

And so I have united in this new genus those species which stand between *Esperia* and *Desmacidon* by the simultaneous or varying appearance of symmetric or asymmetric anchors. Further those species, which do not distinctly show the characteristics of *Desmacidon* and *Myxilla*; finally — although as yet only provisionally — all those species which are so imperfectly described, that the question cannot be decided. In this case it may be supposed that certain characteristics of the above mentioned genera did not very distinctly show themselves.

Speaking in a Haeckelian sense, one may regard *Amphilectus* as the principal genus; *Esperia*, *Desmacidon* and *Myxilla* as generic varieties.

1. ***Amphilectus gracilis*** (Bwk.) Vosm.

Synon. Isodictya gracilis Bwk. '66.
Isodictya Edwardii Bwk. '66.
Isodictya paupera Bwk. '66.

Litt. Bowerb. M. Br. Sp. II p. 331, III p. 149.—
Bowerb. M. Br. Sp. II p. 325, III p. 148.—
Bowerb. M. Br. Sp. II p. 328, III p. 139.

Spic. tr. ac. (two kinds.)
anc^2.2 („minute, few in number.")

Loc. Lough Larne (Ireland). — Banff. (Scotland). — Torquay.

2. ***Amphilectus compressus*** (Bwk.) Vosm.
Synon. Halichondria compressa Bwk. '75.
Litt. Bowerb. Proc. Z. Soc. pag. 291 (without illustr).
Spic. tr. ac.
tr°. ac.
anc^2.2 („large and stout, few in number; minute and slender, numerous").
anc^2.3 („rarely").
Loc. Straits of Malacca.

3. ***Amphilectus dubius*** (Bwk.) Vosm.
Synon. Isodictya dubia Bwk. '74.
Litt. Bowerb. M. Br. Sp. III p. 323 and 325.
Spic. tr. ac.
ac^2. („rarely.")
anc^2.2 („minute, very few in number").
Loc. Clew Bay.

4. ***Amphilectus Neptuni*** (O. S.) Vosm.
Synon. Desmacidon Neptuni O. S. '75.
Litt. Schmidt. Erg. N. F. pag. 117.
Spic. ac^2.
anc^2.2.
Loc. N. W. of Bukenfjord; 106 fathoms.

5. ***Amphilectus physa*** (O. S.) Vosm.
Synon. Desmacidon physa. O. S. '75.
Litt. Schmidt. Erg. N. F. pag. 118. without illustr. of the spicules.
Spic. tr°^{2}. (never tr°^{2}f.)
tr. ac.
ac^2.
anc^2.
Loc. S. W. of Bukenfjord. 106 fathoms.

6. ***Amphilectus Korenii*** (O. S.) Vosm.
Synon. Desmacidon Korenii. O. S. '75.
Litt. Schmidt. Erg. N. F. pag. 117 (without illustr.)
Spic. tr°. ac.
tr. ac.
(anc^2) NB.

Loc. S. W. of Bukenfjord in 106 fathoms.

Although Schmidt does not speak of anchors, it is evident that he has seen them, else he could not arrange the Sponge under *Desmacidon*. The same observation applies to number seven.

7. ***Amphilectus emphysema*** (O. S.) Vosm.
   Synon. Desmacidon emphysema O. S. '75.
   Litt. Schmidt. Erg. N. F. pag. 118 (without illustr.)
   Spic. $tr^{\circ 2}$.
   $tr^2f.$
   $tr^{\circ 2}f.$
   (anc^2) NB.
   Loc. W. N. W. of Hougesund; S. W. of Bukenfjord in 106 fathoms.
8. ***Amphilectus asper*** (Bwk.) Vosm.
   Synon. Halichondria aspera Bwk. '75
   Litt. Bowerbank. Proc. Z. Soc. p. 287. (without illustr.)
   Spic. $tr^{\circ 2}$.
   ac^2. (long and slender.)
   ∽
   anc^2.2 (stout, large, few in number; minute numerous.
   Loc. Straits of Malacca.
9. ***Amphilectus appendiculatus*** (Crtr.) Vosm.
   Synon. Histoderma appendiculatum Crtr. '74.
   Litt. Carter. Ann. a. Mag. XIV. pag. 220.
   Spic. tr. ac. („abruptly pointed")
   $tr^{\circ 2}$.
   ∽ (stout, large.)
   anc^2. 3.
   Loc. W. Coast of Ireland, 109—808 fathoms.
10. ***Amphilectus rigidus*** (Bwk.) Vosm.
    Synon. Halichondria rigida Bwk. '75.
    Halichondria crassa. Bwk. '75.
    Litt. Bowerb. Proc. Z. Soc. pag. 289.
    Bowerb. Proc. Z. Soc. pag. 290.
    Spic. tr. ac.

$\subset\supset$
anc^2.2 (small, rather stout, not numerous").
Loc. Straits of Malacca.

11. ***Amphilectus filifer*** (O. S.) Vosm.
Synon. Desmacidon filiferum O. S. '75.
Litt. Schmidt. Erg. N. F. pag. 117. (without illustr. of the spicules).
Spic. tr^2.f.
$\subset\supset$
anc^2.
Loc. S. W. of Bukenfjord, in 106 fathoms.

12. ***Amphilectus caducus*** (O. S.) Vosm.
Synon. Desmacidon caducum O. S. '68.
Litt. Schmidt. Sp. K. A. pag. 11.
Spic. tr. ac. sp.
(tr$^\circ$. ac. sp.)
tr^2.
$\subset\supset$
anc^2.
Loc. Algiers.

13. ***Amphilectus rugosus*** (Bwk.) Vosm.
Synon. Isodictya rugosa. Bwk. '74.
Isodyctya tumulosa Bwk. '74.
Litt. Bowerb. M. Br. Sp. III p. 331 and 332.—
Bowerbank. Ibid. pag. 343 and 344.
Spic. tr. ac. sp.
ac^2.
$\subset\supset$
anc^2.2.
Loc. Hastings. Torquay.

14. ***Amphilectus gigas*** (Merejk.) Vosm.
Synon. Myxilla gigas. Merejk. '78.
Litt. Merejkowsky. Ep. M. Bl. p. 44. (without illustr.)
Spic. tr. ac. sp.
tr$^{\circ 2}$.
$\subset\supset$
anc^2.

Loc. White Sea.

15. ***Amphilectus Beanii*** (Bwk.) Vosm.
Synon. Isodyctya Beanii Bwk. '66.
Litt. Bowerb. M. Br. Sp. II p. 334, III p. 147.
Spic. tr. ac.
tr. ac. sp. („short and stout").
∧
anc². 2. (minute, very rare").

16. ***Amphilectus atrasanguineus*** (Bwk.) Vosm.
Synon. Microciona atrasanguinea Bwk. '66.
Litt. Bowerb. M. Br. Sp. II. p. 138, III p. 63.
Spic. tr. ac.
(tr°. ac.)
tr. ac. sp. (f.)
∧
anc². 2.

17. ***Amphilectus coriaceus*** Bwk. Vosm.
Synon. Isodictya coriacea Bwk. '74.
Litt. Bowerbank. M. Br. Sp. III pp. 223 and 228.
Spic. tr. ac.
t°². sp.
∧
anc². 2. („minute, few in number").

18. ***Amphilectus frondifer*** (Bwk.) Vosm.
Synon. Halichondria frondifera Bwk. '75.
Litt. Bowerb. Proc. Z. Soc. p. 288.
(without illustration).
Spic. tr. ac. (two kinds).
tr. ac. sp.
anc². 2.
Loc. Straits of Malacca, Gaspar Straits.

19. ? ***Amphilectus expansus*** (Bwk.) Vosm.
Synon. Halichondria expansa Bwk. '69.
Litt. Bowerb. Ann. a. Mag. III p. 298.
Spic. tr².f.sp. („fusiformi-cylindrical, terminations incipiently spinous, spines very minute").

ac². sp.?
anc. anc. („bidentate inequianchorate").
Loc. Sound of Skye.

20. ***Amphilectus fimbriatus*** (Bwk.) Vosm.
Synon. Isodictya fimbriata Bwk. '66.
Litt. Bowerb. M. Br. Sp. II p. 337, III p. 147.
Schmidt, II Suppl. p. 17.
Schmidt, Sp. Atl. Geb. p. 56.
Spic. tr. ac.
tr. ac. sp.
anc².3.
rut². („bifimbriate equianchorate").
Loc. Shetland.

21. ***Amphilectus laciniosus*** (Bwk.) Vosm.
Synon. Isodictya laciniosa Bwk. '74.
Litt. Bowerb. M. Br. Sp. III p. 219.
Norman. Ann. a. Mag. 1869. III p. 298.
Norman. Report Brit. Association.
Spic. tr. ac.
tr°. ac.
tr. ac. sp.
anc².
? rut². („bicalcarate bihamate").
Loc. Shetland.

I am not quite sure that the „bicalcarate bihamate" is a modification of the rut². in general. Bowerbank gives only one illustration of this kind of spiculum (Mon. Br. Sp. Vol. I. Pl. V. fig. 121), which is taken in profile.

22. ***Amphilectus imitatus*** (Bwk.) Vosm.
Synon. Isodictya imitata Bwk. '74.
Litt. Bowerb. M. Br. Sp. III p. 223 and 226.
Spic. tr. ac.
anc².2.
rut².
Loc. Belfast.

23. ***Amphilectus ambiguus*** (Bwk.) Vosm.
Synon. Microciona ambigua Bwk. '66.

Litt. Bowerb. M. Br. Sp. II p. 136, III p. 65.
Marenzeller. Coelenterata etc. O. N. E. p. 14.
Spic. ac^2.
tr. ac. sp.
tr. ac.
rut^2. (anc^2. ?)
Loc. Shetland. Between Franz-Joseph Land and Nova-Zembla, 142 fathoms.

24. ***Amphilectus fucorum*** (Johnst.) Vosm.
Synon. Isodictya fucorum Bwk. '66.
Halichondria fucorum Johnst. 1842. (accord. to Bowerbank).
Spongia fucorum Esper. 1830? (acc. to Johnst.)
Halispongia parasitica Blainv. 1837? (acc. to Johnston).
Halichondria parisitica Flem. 1828. (acc. to Johnston).
Spongia parasitica Mont. 1818. (acc. to Johnst.).
Litt. Bowerbank. M. Br. Sp. II p. 322, III p. 142. —
Johnston Br. Sp. p. 112. —
Esper. Pflanzenth. Sp. Tab. XLIX fig. 1, 2. —
Blainville, Actinol. pag. 532. —
Fleming. Brit. Anim. pag. 521.
Thomson. Ann. a. Mag. V. p. 254.
Bellamy. South Devon. p. 268. —
Montagu. Br. Sp. pag. 114.
Grant. New. Phil. Journ. 1826. I pag. 348.
Spic. tr. ac. (two kinds).
∞
rut^2.
Loc. Brighton, Shetland, Scarborough, Hastings.

25. ***Amphilectus Normani*** (Bwk.) Vosm.
Synon. Isodyctya Normani Bwk. '66.
Isodictya Alderi Bwk. '66.
Litt. Bowerb. M. Br. Sp. II p. 320, III p. 141.
Bowerb. M. Br. Sp. II p. 323, III p. 143.
Spic. tr. ac. (two kinds).

ac². (rarely.)
rut².

Loc. Guernsey. — Bambough, Northumberland.

26. ***Amphilectus foliatus*** (Bwk.) Vosm.

Synon. Halichondria foliata. Bwk. '74.

Litt. Bowerb. M. Br. Sp. III pp. 197 and 198.
Carter. Ann. a. Mag. 1876 XVIII p. 310.

Spic. tr. ac. (slender, straight).
tr. ac. (stout, „flecto-acuate").
∧
anc². 2.
rut².

Loc. Shetland; 17 fathoms.

27. ***Amphilectus mutulus*** (Bwk.) Vosm.

Synon. Halichondria mutula Bwk. '74.

Litt. Bowerb. M. Br. Sp. III pp. 207 and 209.

Spic. tr. ac. (two kinds.)
∧
rut².

Loc. Shetland, 96 fathoms.

It is not impossible that this Sponge is only a variety of the preceding

28. * ***Amphilectus armatus*** (O. S.) Vosm.

Synon. Microciona armata. Bwk. '66.
Scopalina toxotes O. S. '68.

Litt. Bowerb. M. Br. Sp. II p. 129, III p. 60.
Schmidt. Sp. K. A. pp. 26 and 39.

Spic. tr. ac.
tr°. ac.
tr. ac. (f.)
tr. ac. sp.
∧
anc². 2.
rut².

Loc. Belfast Lough, Jersey. Triëst, Zara.

Studying at the zoological Station at Triëst, where I was admitted to the laboratory thanks to the great kind-

ness of Prof. F. E. Schulze, I often had opportunity to examine *Scopalina toxotes* O. S. I was able to convince myself that both, anc^2. 2 and rut^2. occur. In the original Sponge of Schmidt, in the Joanneum-Collection in Graz, the anchors are *very* rare, and so I could not find anc^2. 2. Having convinced myself of the identity of the original *Scopalina* O. S. and the Sponges I had examined in Triëst, I concluded; 1°. that *Scopalina toxotes* O. S. = *Microciona armata* Bwk. 2°. that all the above mentioned kinds of spicules can occur.

29. ***Amphilectus phlyctenodes*** (Crtr.) Vosm.
Synon. Halichondria phlyctenodes Crtr. '76.
Litt. Carter. Ann. a. Mag. XVIII pag. 314.
Spic. ac^{2}f.
∽
rut^2.
Loc. A few miles N. of Cape St. Vincent; 374 fathoms.

30. ***Amphilectus Clarkei*** (Bwk.) Vosm.
Synon. Isodictya Clarkei Bwk. '66.
Litt. Bowerb. M. Br. Sp. II p. 330, III p. 142.
Spic tr. ac.
rut^2. [rut. rut.]
Loc. North Shields, Dundee.

31. ***Amphilectus Parishii*** (Bwk.) Vosm.
Synon. Rhaphiodesma Parishii. Bwk. '75.
Litl. Bowerb Proc. Z. Soc. p. 283. (without illustr.)
Spic. tr. ac.
tr°^{2}.
∧
∽ (large ones and minute ones).
rut rut. („congregated in groups," large and strong).
rut. rut. („minute").
anc. anc. („minute").
anc^2 2. („large and stout").
Loc. Straits of Malacca.

32. ***Amphilectus anceps*** (O. S.) Vosm.
Synon. Desmacidon anceps. O. S. '74.

Esperia anceps. O. S. '74.
Litt. Schmidt, Zweite Nordp. F. II p. 430.
Schmidt, Erg. N. F. 1875. p. 117.
Spic. tr. ac.
tr. ac. sp.
tr°. ac.
(tr°². sp.)
(∧ sp.) [„Klammer"].
(anc².)
(rut².)
rut. rut.
Loc. Nordshannon, Arendal; S. W. of Bukenfjord in 106 fathoms; W. Greenland.

33. ***Amphilectus fabricans*** (O. S.) Vosm.
Synon. Esperia fabricans O. S. '74.
Litt. Schmidt. Zw. Nordp. F. II. p. 433.
Spic. »Spitz" = ?
anc².
rut. rut.
Loc. Unknown.

34. ***Amphilectus lanugo*** (O. S.) Vosm.
Synon. Esperia lanugo. O. S. '75.
Litt. Schmidt. Erg. N. F. p. 118. (without illustration).
Spic. tr. ac.
rut. rut.
rut³.
Loc. Great Belt, in 24 fathoms.

35. ***Amphilectus titubans*** (O. S.) Vosm.
Synon. Desmacidon titubans O. S. '70.
Litt. Schmidt. Sp. Atl. Geb. p. 55.
Spic. tr. ac. (two kinds).
ᔕ
anc. anc.
anc.
Loc. Florida; 175—324 fathoms.

36. ***Amphilectus spinulentus*** (Bwk.) Vosm.
Synon. Microciona spinulenta. Bwk. '66.

Litt. Bowerb. M. Br. Sp. II. p. 132, III p. 61.
Spic. $t^{\circ 2}$.
tr°. ac. sp. (two kinds).
anc. anc. (nearly anc^2.)
„unipoculated" [= ∽ ?]
Loc. Weymouth-Bay.

37. ? ***Amphilectus expansus*** (Bwk.) Vosm.
Synon. Halichondria expansa. Bwk. '69.
Litt. Bowerbank. Ann. a. Mag. III p. 298. (without illustration).
Spic. tr^2f. sp. („fusiformi-cylindrical, terminations incipiently spinous, spines very minute").
ac^2. sp. ?
anc. anc. 2.
Loc. Sound of Skye.

38. ***Amphilectus crux*** (O. S.) Vosm.
Synon. Desmacidon crux. O. S. '75.
Litt. Schmidt. Erg. N. F. pag. 118.
Spic. ac^2.
tr. ac. sp.
anc^2. sp.
Loc. S. W. of Bukenfjord; 106 fathoms.

39. ***Amphilectus microcionides*** (Crtr.) Vosm.
Synon. Hymeraphia microcionides Crtr. '76.
Litt. Carter. Ann. and Mag. XVIII p. 390. (without illustration).
Spic. tr. ac.
tr. ac. sp.
tr^2. sp. (bent).
anc^2. (or rut^2 ?)
Loc. Near Cape St. Vincent, 374 fathoms.

40. ***Amphilectus planus*** (Crtr.) Vosm.
Synon. Microciona plana Crtr. '76.
Litt. Carter. Ann. and Mag. XVIII p. 238. (without illustration).
Spic. tr. ac.
tr°. ac. sp.

rut². (shuttle-like.)

Loc. Cape St. Vincent, 374 fathoms.

41. * ***Amphilectus papillatus*** nov. spec.

Spic. ac² f. (two kinds.) [ac. ac. f.]

ac² (slender)

A (few.)

anc².3. (anc. anc.)

Loc. Cape of Good Hope. [Mus. L. B.]

The specimen in the Leyden Museum has a certain resemblance with the illustration, which Schmidt gives of his *Esperia renieroides* [1]); only the papillae are not so large in our Sponge.

42. ***Amphilectus caespes*** (Ehl.) Vosm.

Synon. Scopalina caespes Ehlers. '70.

Litt. Ehlers. Die Esp. Spong. p. 19. (without illustr.)

Esper. Pflanzenth. Sp. Tab. LIV.

Spic. tr. ac. sp.

anc².3.

Loc. Cape of Good Hope.

Genus IV. Sclerilla O. S. 1868.

Rods smooth or spined. Anchors bi-or tridentate, equiended. Irregular membranes of sarcode with stronger fibres.

I do not quite understand the meaning of Schmidt's diagnosis of this genus and will therefore give the original text. He says: »Ich fasse hiernit einige Spongien zusammen, welche in den meisten Charakteren mit *Myxilla* übereinstimmen, aber dadurch eine Mittelstellung zwischen ihnen und den Faserkieselschwämmen einnehmen, dass in ihren

1 Spongien Atl. Geb. Pl. V fig. 22 (see also Pl. V fig. 11, being an illustration of *Tedania suctoria*).

Parenchym stellenweise sich unregelmässige, festere Sarcode-Membranen und von diesen aus Verdickungen und unregelmässige, sich auch isolirende Fasern absondern."

1. ***Sclerilla filans*** O. S. '68.
   Litt. Schmidt. Sp. K. A. p. 13.
   Spic. $tr^{\circ 2}$.
   tr. ac. sp.
   ∞
   »foliato-peltate spicules."
   $anc^2.3$.
   Loc. Algiers.
2. ? ***Sclerilla texturans*** O. S. '68.
   Litt. Schmidt. Sp. K. A. pag. 13.
   Spic. tr°. ac. sp.
   tr. ac. sp. (tr. ac.)
   tr°. ac.
   anc^2 ? (Schmidt).
   Loc. Algiers.

Genus Myxilla [1]). O. S. 1862. s. str.

Rods smooth or spined; the spined rods prevailing, anchors bi- or tridentate, equiended. Soft, slimy Sponges when alive; brittle, easily reduced to powder, when dried, by the total absence of „keratode-fibre."

1. * ***Myxilla rosacea*** O. S. '62.
   Synon. Halichondria rosacea Lbkn. (acc. to Schmidt).
   Myxilla tridens O. S. '64.
   Myxilla fasiculata O. S. '62, [non Lbkn.]
   Myxilla Esperii O. S. in several collections.
   Litt. Schmidt. Sp. A. M. pag. 71. (without illustr.)
   Lieberkühn, Müll. Arch. 1859. p. 521.
   Schmidt. I, suppl. p. 36.

1) μύξα, slime.

Schmidt, Sp. K. A. pp. 13 and 27.

Spic. tr. ac. sp.
tr. ac.
tr°. 2: (the ends with three spines).
ac^2.
ᔕ
anc^2.3.

Loc. Triëst, Zara, Venice, Algiers.

In Schmidt's original specimen of *M. fasciculata* (not = Hal. fasciculata Lbkn., as will be shown further on), desposited in the Joanneum-Collection in Graz, I have found exactly the same spicules as in *M. rosacea* and *M. tridens*. So I feel justified in concluding to the identity of those three species. Even in the original specimen of *M. tridens* I could *not* find the curious spicule, described by Schmidt [1]) pag. 37; so I believe Schmidt is right in saying: „er könnte also ein Eindringling sein."

2. ***Myxilla thela*** [2]) nov. spec.

Spic. tr. ac.
tr. ac. sp.
ac^2.
ᔕ (very numerous, stout; also little ones).
anc^2.3

Loc. Triëst.

This indubitable *Myxilla* occurs as a yellowish gray crust on stones. It is characterised by the acerate bars the ends of which are teat-shaped. The preceding sponge on the contrary has acerate rods of the usual form, and has besides these, the characteristic tridentate tr°^{2}.

3. ***Myxilla veneta*** O. S. '62.

Litt. Schmidt. Sp. Adr. M. p. 71.

Spic. ac^2.
tr. ac.

---

1) I Supplement. 1864.

2) θηλή, teat.

tr. ac. sp.
anc^2.3.

Loc. Venice.

In Schmidt's original specimen (Joann. Graz) I could not find the slender tr. ac.

4. ***Myxilla pulvinar*** O. S. '68.

Litt. Schmidt. Sp. K. Alg. p. 14.

Spic. tr^2.
ac^2. sp.
∽
anc^2.

Loc. Algiers.

5. ***Myxilla proteidea*** O. S. '68.

Litt. Schmidt. Sp. K. Alg. p. 13.

Spic. tr°. ac. sp.
ac^2.
anc^2.

Loc. Algiers.

It is very probable that this species is but a variety of the following.

6. * ***Myxilla fasciculata*** (Pall.) Vosm. (non O. S.)

Synon. Halichondria fasciculata Lbkn. '59
Spongia fasciculata Pall. acc. to Lbkn.

Litt. Lieberkühn. Müll. Arch. p. 522.

Spic. ac^2.
tr. ac. sp. (tr°. ac. sp.)
anc^2.

Loc. Triëst.

Prof. F. E. Schulze in Graz possesses an original specimen of Lieberkühn's *Halichondria fasciculata*, and kindly permitted me to study this type of the species; I found that only the three (four) above mentioned spicules occur. In Triëst I very often had opportunity to examine this Sponge and so I saw that these three (four) kinds of spicules are constant. The Sponge is as common as *M. rosacea* O. S. As for observations on histological structure, I must refer to my following paper, which I hope will be soon ready.

7. ***Myxilla fictitia*** (Bwk) Vosm.
Synon. Microciona fictitia Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 124, III p. 59.
Spic. ac^2. (slender.)
tr^0. ac. sp.
tr^0. ac.
$anc^2.3$.
Loc. Guernsey.

8. ***Myxilla plumosa*** (Bwk.) Vosm.
Synon. Microciona plumosa Bwk. '74.
Hymeniacidon plumosa Bwk. '66.
Microciona carnosa Bwk. '66.
Halichondria plumosa Johnst. '42 (accord. to Bowerbank).
? Spongia plumosa Mont. (acc. to Johnst.).
Litt. Bowerbank. M. Br. Sp. III. p. 61. —
Bowerbank. M. Br. Sp. II. p. 195. —
Bowerbank. M. Br. Sp. II. p. 133. —
Johnston. Br. Sponges. p. 103. —
Montagu. Ess. on Sp. p. 116.
Fleming. Br. Anim. p. 526.
Gray. Br. Fl. I. pag. 361.
Spic. ac^2.
tr. ac. sp.
$anc^2.2$.
Loc. Hastings, Ireland, Guernsey, Devon.

9. ***Myxilla zetlandica*** (Bwk.) Vosm.
Synon. Hymedesmia zetlandica Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 152, III p. 73.
Spic. tr. ac. sp. »strongly spined".
tr^2.
(tr^{o2}.)
ᔕ
$anc^2.3$.
Loc. Shetland, deep sea.

10. ? ***Myxilla perarmata.*** (Bwk.) Vosm.
Synon. Hymeniacidon perarmatus (Bwk.)

Litt. Bowerbank. M. Br. Sp. II p. 164, III p. 79.
Spic. ac^2.
tr^0. ac. sp.
$anc^2.3$.
Loc. Shetland.

11. ***Myxilla paupertas*** (Bwk.) Vosm.
Synon. Hymeniacidon paupertas Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 223, III p. 93.
Spic. tr^2. ($tr^{0\,2}$.)
tr. ac. sp.
tr^0. ac. sp.
$anc^2.3$.
Loc. Shetland.

12. ***Myxilla forcipis*** (Bwk.) Vosm.
Synon. Halichondria forcipis Bwk. '66.
Litt. Bowerbank M. Br. Sp. II p. 244, III p. 105.
Carter. Ann. a. Mag. 1874. XIV. p. 246.
Carter. Ann. a. Mag. 1876. XVIII. p. 313.
Spic. tr. ac.
$tr^{0\,2}$.
$\subset\supset$
»forcepiform, spined." ($= \wedge$ sp ?)
$anc^2.3$ (and $anc^2.2$).
Loc. Shetland; between the North of Scotland and the Färoër Islands, in 363 fathoms.

13. ***Myxilla bulbosa*** (Crtr.) Vosm.
Synon. Halichondria forcipis var. bulbosa Crtr. '76.
Litt. Carter. Ann. a. Mag. 1876. XVIII. p. 313.
Spic. tr. ac.
tr_0^2.
$\subset\supset$
$\wedge$ sp. (»bulbous at the extremities").
rut^2.
Loc. North side of Cape St. Vincent; 292—374 fathoms.

14. ***Myxilla Thompsoni*** (Bwk.) Vosm.
Synon. Halichondria Thompsoni Bwk. '66
Litt. Bowerbank. M. Br. Sp. II p. 243, III. p. 107.

Spic. tr. ac.
tr. ac. sp.
anc^2.2.
Loc. Belfast.

15. ***Myxilla irregularis*** (Bwk.) Vosm.
Synon. Halichondria irregularis Bwk. '66. —
Microciona Kentii Bwk. '74. —
Litt. Bowerbank. M. Br. Sp. II. p. 252, III p. 109. —
Bowerbank. M. Br. Sp. III. p. 311 and p. 317.
Spic. ac^2.
tr. ac. sp.
tr^0. ac. sp.
anc^2.2.
Loc. Hastings. — Jersey, Guernsey.

16. ***Myxilla granulata*** (Bwk.) Vosm.
Synon. Halichondria granulata Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II. p. 262, III. p. 111.
Spic. ac^2.
tr. ac. sp.
tr^0. ac. sp.
anc^2.3.
Loc. Oban.

17. ***Myxilla albula*** (Bwk.) Vosm.
Synon. Halichondria albula Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 268, III p. 112.
Spic. tr. ac.
tr. ac. sp.
anc^2.2.
Loc. Shetland.

18. ***Myxilla Batei*** (Bwk.) Vosm.
Synon. Halichondria Batei Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 261, III p. 117.
Spic. ac^2.
tr. ac. sp.
anc^2.2. (two kinds.?)
anc^2.3.
Loc. Shetland.

19. ***Myxilla jecusculum*** (Bwk.) Vosm.
Synon. Microciona jecusculum Bwk. '74.
Hymeniacidon jecusculum Bwk. '66.
Litt. Bowerbank. M. Br. Sp. III p. 273 and 274.
Bowerbank. M. Br. Sp. II p. 198.
Carter. Ann. a. Mag. 1876. XVIII p. 237.
Spic. tr. ac.
tr. ac. sp. (two kinds).
anc^2.2.
(anc^2.3.)
Loc. Harris-Island (Hebrides).

20. ***Myxilla fraudator*** (Bwk.) Vosm.
Synon. Microciona fraudator Bwk. '74.
Litt. Bowerbank. M. Br. Sp. III pp. 273 and 275.
Spic. ac^2.
tr. ac. sp.
anc^2.2.
Loc. Polperro, Forwey Harbour.

21. ***Myxilla indistincta*** (Bwk.) Vosm.
Synon. Hymedesmia indistincta Bwk. '74.
Litt. Bowerbank. M. Br. Sp. III pp. 303 and 304.
Spic. tr. ac.
tr. ac. sp.
ac^2.
anc^2.2.
rut^2.
Loc. Shetland.

22. ***Myxilla occulta*** (Bwk.) Vosm.
Synon. Hymedesmia occulta Bwk. '74.
Litt. Bowerbank M. Br. Sp. III p. 245 and 250.
Spic. ac^2.
ac^{2}f.
tr. ac. sp.
anc^2.3. (rut^2.)
Loc. Shetland.

Genus Desmacidon (Bwk.) O. S. 1870. s. str.

Rods smooth or spined. Anchors bi- or tridentate, also palmato-dentate, equiended. „Keratode-fibre" very conspicuous.

1. ***Desmacidon grisea*** O. S. '70.
   Litt. Schmidt. Sp. Atl. Geb. p. 55.
   Spic. tr^2. (slender).
   ∽
   $anc^2.3$.
   Loc. Florida in 9 fathoms.
2. ***Desmacidon armata*** O. S. '68.
   Litt. Schmidt. Sp. K. A. p. 11.
   Spic. ac^2. (stout).
   tr. ac. (slender).
   tr. ac. sp. (stout).
   tr°. ac. sp. (slender).
   $anc^2.3$.
   Loc. Algiers.
3. ***Desmacidon arcifera*** O. S. '68.
   Litt. Schmidt. Sp. K. Alg. p. 12.
   Spic. $ac.^2$.
   tr°. ac.
   tr°. ac. f.
   ∧
   rut^2.
   Loc. Algiers.
4. ***Desmacidon tunicata*** O. S. '70.
   Synon. ? Desmacidon infestum O. S. '70.
   Litt. Schmidt. Sp. Atl. Geb. pag. 55.
   Spic. tr^2.
   ∽
   $anc^2.3$. (rut^2.)
   Loc. Florida, 103 fathoms; Portugal.
5. ***Desmacidon fruticosa*** (Mont.) Bwk. '66.
   Synon. Halichondria fruticosa Johnst. '42. (acc. to Bwk.)

Spongia fruticosa. Montagu. 1818. (acc. to Johnst.)
? Spongia crispata Esp. 1830. (acc. to Johnst.)
? Spongia lichenoides Pallas. 1766. (acc. to Mont.)
Spongia licheniformis. Lam. (acc. to Johnst.)
Halichondria fruticosa Flem. 1820. (acc. to Johnst.)

Litt. Bowerbank M. Br. Sp. II. p. 345, III p. 155. —
Johnston. Br. Sp. pag. 102. —
Montagu. Essay on Sp. p. 112.
Gray. Brit. pl. I. 360.
Grant. New. Phil. Journ. II p. 139.
Blainv. Actin. pl. 94 fig. 10. (copied from Grant.) —
Esper. Pflanzenth. Sp. Tab. 37. fig. 1—3. —
Pallas. Elench. Z. p. 378?
Gmelin. p. 3824. —
Lamarck. Anim. s. Vert. II p. 354, [2e edit. II pag. 543.]
Lamouroux. Cor. Flex. 22. Corall. 153. —
Fleming. Brit. Anim. p. 522.

Spic. ac^2.
∞
$anc^2.2$.

Loc. Forwey, Hastings.

6. ***Desmacidon villosa*** (Crtr.) Vosm.

Synon. Esperia villosa Crtr. '74.

Litt. Carter. Ann. a. Mag. XIV p. 213.

Spic. tr^c. ac. f. (tr. ac. f.)
∞
rut^2. (two kinds?)

Loc. Between the N. Coast of Scotland and the Färoër Islands.

7. * ***Desmacidon lentus*** [1]) nov. spec.

Spic. ac^2 (bent).
(ac^2f.).
tr^2. (bent).

1) Lentus, flexible.

tr. ac. (tr⁰. ac.).
anc².3 (rut².).
(anc²2.)

Loc. Coast of France. (Mus. L. B.).

This species, and the following still more so, are typical examples of *Desmacidon*'s. The large amount of „keratode fibre" makes the Sponge very flexible, even in the dried state. The form resembles that of *Isodictya palmata* Bwk. (see lower down). The Leyden Museum possesses only one dried specimen, of the above described Sponge; it is in good condition. The skeleton is formed by very stout spicules, which are nearly all imbedded in strong fibre. The fibres form a regular compact network: radiating bundles, placed close to each other, being united together by others perpendicular to them. It thus takes the appearance of a combination of ladders. On the surface there are numerous, slightly raised oscula (?) between these innumerable pores (?). The acerate spicules, which are bent in the middle, prevail. They are larger than the fusiformi-acerate and acerate ones. The anchors are not very common. The shafts and the hooks are often flexuous.

8. * ***Desmacidon elastica*** nov. spec.

Spic. ac² bent in the middle.

ac². f.
tr°. ac. f. (very large).
tr².
? tr. ac. sp. (rare).
anc².3.
rut².

Loc. Cape of Good Hope. (Mus. L. B.)

As was already mentioned the fibre is very strong, rendering the Sponge flexible. The form also resembles that of *Isodictya palmata* Bwk. On the surface numerous little pores (?) and greater oscula (?) are visible, the latter being placed in groups, like sieves. The large sub-fusiform acerate spicules have about four or five times the length of the ac², tr², tr. ac. sp. etc. The spinous spi-

cules are so very rare that it is not impossible they do not belong to the sponge. The anchors are of two kinds; the anc^2.3 have two large flexuous hooks and a small rudimentary one in the middle.

9. ***Desmacidon palmata*** (Bwk.) Vosm.

Synon. Isodictya palmata. Bwk. '66. —
Halichondria palmata Johnst. '42. (acc. to Bwk.) —
Spongia palmata Ellis and Sol. 1786 ? (acc. to Johnst.) —
Spongia bacillaris L. (acc. to Johnst.) —
Spongia oculata Esp. (acc. to Johnst.) —
Manon oculatum Schweig. (acc. to Johnst.) —
Tupha palmata Gray. (acc. to Johnst.) —
Halispongia palmata. Blainv. (acc. to Johnst.)—
Spongia digitata Esp. (acc. to Ehlers).
Homoeodictya digitata (Esp.) Ehlers.

Litt. Bowerbank. M. Br. Sp. II p. 311, III pag. 133. —
Johnston. Br. Sponges. pag. 92.
Fleming. Brit. Anim. p. 523.
Johnston. Trans. Newc. Soc. II p. 269.
Bellamy. South Devon. p. 268. —
Ellis and Solander. Zooph. p. 189.
Sibb. Scot. ill. II liv. IV p. 55.
Jameson. Wern. Mem. I p. 562.
Montagu. ibid. p. 80.
Lamarck. An. s. Vert. II p. 379; 2e edit p. 569.
Lamouroux. Cor. Flex. p. 75.
Lamouroux. Corral. p. 181.
Parkins. Oryctology. p. 46 and 48.
Stark. Elem. II. p. 424. —
Linné. Syst. Nat. p. 1299.
Müller. Zool. Danica. prod. p. 256.
Lamouroux. Cor. Flex. p. 83.
Lamouroux. Corall. p. 186.
Esper. Pflanzenth. tab. I. fig. 1, 2. —
Schweiger. Handb. p. 422. —
Gray. Brit. Pl. I. p. 355. —

Blainville, Actinol. p. 533. —
Esper. Die Planzenth. p. 190. Sp. Tab. II.
Ehlers. Die Esp. Spongien. pp. 16, 32 a. 35.

Spic. ac^2.
anc^2.

Loc. Northumberland, Scotland, Orkney and Shetland Islands, Devon, Norway.

10. ***Desmacidon Dianae*** O. S. 78.

Litt. Schmidt. Sp. Atl. Geb. pag. 55.

Spic. tr^2.
$\curvearrowright$
$\wedge$ sp. (stout).
anc^2.

Loc. Florida; 125 fathoms.

11. ***Desmacidon incrustans*** (Bwk.) Vosm.

Synon. Halichondria incrustans Bwk. '66. —
Halichondria saburrata Johnst. '42. (accord. to Bowerbank and Carter).
Halichondria incrustans Johnst. '42. (accord. to Bowerbank and Carter). —
Alcyonium incrustans Esper '30. (acc. to Johnst.)
Spongia fava Mont. '18. (acc. to Johnst.) —
Spongia panicea Grant. (acc. to Johnst.) —
Halichondria panicea Flem. '28 (not. acc. to Bowerb. but acc. to Johnst.)
Halispongia panicea. Blainv. (acc. to Johnst.) —

Litt. Bowerbank. M. Br. Sp. II p. 249. III p. 108. —
Johnston. Br. Sp. pag. 120 and 197. —
Carter. Ann. and Mag. 1874. XIV pag. 208.
Schmidt. II Suppl. pag. 17.
Johnston. Br. Sp. pag. 122. —
Esper. Pfl. Th. Alcyon. tab. XV.
Lamarck Anim. s. Vert. II p. 397; 2e edit. II p. 603.
Lamouroux. Cor. Flex. p. 340.
Lamouroux. Corall. p. 244. —
Montagu. Br. Sp. p. 115.
Gray. Brit. Pl. I p. 360. —

Grant. Ed. Phil. Journ. XIII p. 104, XIV p. 118.
Grant. New Phil. Journ. I p. 347, II p. 128 and 138.
Blainville, Actinol. pl. 94. —
Fleming. Brit. Anim. p. 520. —
Blainville. Actinol. p. 532. —

Spic. tr. ac.
tr. ac. sp.
tr. ac. f.
ᔕ
anc^2.

Loc. Frith of Forth, Hebrides, Orkeney's, Shetland, Welsh and Irish Coast, Hastings.

Genus VII. Crambe [1]) Nov. Gen.

Irregular, branched, siliceous corpuscules with axial canals. Rods smooth or spined. Anchors equiended.

1. ***Crambe hurpago.*** Vosm.

Synon. Suberites crambe O. S. '62.
Suberites fruticosus O. S. '62.

Litt. Schmidt. Sp. A. M. p. 66.

Spic. tr. ac.
tr°. ac.
ac^2 (slender, flexuous).
anc^{2}3.
? ᔕ
? ∧
irregular corpuscules.
„foliato-peltate".

Loc. Lissa, Sebenico, Lesina.

I have had occasion to examine the original specimens of Schmidt preserved in Graz, and I have found both *Suberites crambe* and *fruticosus* to be identical. Schmidt has not seen the anchors, and so arranged this Sponges under

1) κράμβη, cabbrge.

the Suberitidae. The anchors are rather stout: there are two extremes, viz. those with short, thick shafts and those with long, slender shafts; transitions often occur between these two. The three hooks are strong, and resemble claws or the roman *harpago*. I am not sure whether bows and S-shaped spicules occur. I have noted at the time that I have seen them, but I cannot find them again just now.

Genus VIII. Hastatus [1]) Nov. Gen.

Acerate rods with hastate ends; also simple acerate rods and smooth or spined acuate spicules. Anchors equiended.

1. ***Hastatus luridus*** (Bwk.) Vosm.
   Synon Isodictya lurida Bwk. '66.
   Litt Bowerbank. M. Br. Sp. II p. 336, III p. 149.
   Spic. tr. ac. (two kinds.)
   tr. ac. sp.
   ac^2. NB.
   ac^2. (slender).
   anc^2.3.
   Loc. Northumberland.
2. ***Hastatus Dickiei*** (Bwk.) Vosm.
   Synon. Halichondria Dickiei Bwk. '66.
   Litt. Bowerbank. M. Br. Sp. II p. 253, III p. 111.
   Spic tr. ac. sp.
   ac^2. NB.
   ac^2.
   anc^2.3. ($anc^2$2 ?)
   Loc. Strangford Lough.

Genus IX. Cribrella. O. S. '62.

Rods smooth or spined. Anchors bi- or tridentate, equiended. Pores congregated in sieve-like groups.

1. ***Cribrella hamigera*** '62.

---

1) *Hastatus*, armed with a *hasta*. The roman *hasta* had lanceolate points at both extremities.

Litt. Schmidt. Sp. A. M. pag. '70.
Spic. tr. tr.
tr. ac.
anc^2.3. (small).
Loc. Zara.

2. ***Cribrella elegans*** O. S. '62.
Litt. Schmidt. Sp. A. M. p. 70.
Spic. ac^2. sp.
ac^2.
tr. ac. sp. (rare).
? anc^2.
Loc. Zara.

3. ***Cribrella hospitalis*** O. S. '70.
Litt. Schmidt. Sp. Atl. Geb. p. 56.
Carter Ann. a. Mag. 1876. XVIII. p. 313.
Spic. ac^2. (slender).
tr. ac. sp. (not numerous).
tr^2. f. (acc. to Carter).
anc^2.3. (stout).
Loc. Florida, in 15 fathoms.

4. ***Cribrella papillosa*** O. S. '70.
Litt. Schmidt. Sp. Atl. Geb. p. 57.
Spic. tr. tr. (tr^2 ?)
ac^2. sp.
anc^2.3.
Loc. Florida; 135 fathoms.

Genus X. Chondrocladia Wyv. Thoms. '73.

Rods smooth or spined; bows or (and) S- shaped spicules. Anchors equiended, the ends umbrella-shaped. Sponges with arborescent stems. Keratode fibre conspicuous in the axis.

1. ***Chondrocladia virgata*** Wyv. Thoms. '73.
Synon. ? Axos Cliftoni Gray '67. (accord to Carter).
Litt. Wyv. Thomson. Detphs of the Sea. p. 188.

Carter Ann. a. Mag. 1874. XIV p. 217. —
Schmidt. Ergebn. N. F. p. 119.
Gray. Proc. Z. Soc. p. 546.

Spic. tr. ac.
tr°. ac. f.
ᔕ
anc¹.

Loc. Atlantic Ocean.

2. ***Chondrocladia abyssi*** (Crtr.) Vosm.

Synon Halinchondria abyssi. Crtr. '74.

Litt. Carter. Ann. a. Mag. 1874. XIV p. 245.
Cart. Ann. a. Mag. 1876. XVIII p. 315.

Spic. ac². f.
tr.ac.
tr°². f.
(∧)
anc².

Loc. Between the North Coast of Scotland and the Färoë Islands, N. W. of the Shetland Islands, in 345 fathoms.

Genus XI. Cladorhiza. M. Sars. '72.

Rods smooth or spined. Bows or (and) S- shapd spicules. Anchors inequiended, one end umbrella-shaped. Sponges with arborescent stems. Keratode-fibre in the axis.

1. ***Cladorhiza abyssicola*** M. Sars. '72.

Litt. Sars. On some rem. forms of anim. L. p. 65.
Carter. Ann. a. Mag. 1874. XIV p. 218.
Carter. Ann. a. Mag. 1876. XVIII. p. 319.
Schmidt. Erg. N. F. p. 119.
Marenzeller. Coelent. Oester. N. E. p. 15.

Spic. tr. ac. f.
ᔕ (stout, as well as minute ones).
anc. anc. („3—5 teeth").

Loc. Lofoten, 300 fathoms; Skagerak, 294 fathoms (O. S.); Shetland (Crtr.), Between Franz-Joseph Land and Nova-Zembla, in 142 fathoms (Marenz.).

The variety *cortiocanellati* Crtr. has bihamate spicules, „with nearly a straight shaft, and a prolonged, whiplike, everted end to each extremity".

Between the north of Scotland and the Shetland and the Färoë Islands, in 345—632 fathoms".

2. ***Cladorhiza pennatula*** O. S. '75.

Litt. Schmidt Erg. N. F. pag. 119.

Spic. tr. ac.

(tr°. ac.)

ᔕ

anc. anc.

Loc. S. W. of Bukenfjord, W. S. W. of Hougesund, 106 fathoms.

Genus XII. Esperia. Nardo, Char. emend. Schmidt.

Rods smooth or spined. Bows or (and) S. shaped spicules. Anchors palmato-dentate, inequiended. Keratode-fibre often persisting after the death of the Sponge.

1. ***Esperia Contarenii*** (Mart.) O. S. '62.

Synon. Spongia Contarenii Martens '24 (acc. to O. S.) —
Esperia typica. Nardo. '33 (acc. to O. S.). —
Esperia foraminosa O. S. '62. —
Esperia Bauriana O. S. '62. —

Litt. Schmidt. Sp. A. M. pag. 54. —
Czerniawsky. Bull. Soc. I. d. N. M. 1878. p. [var. *pontica* and *flava*].
Martens. Reise n. Venedig. —
Lieberkühn. M. A. 1859 pag. 525. —
Nardo. Sp. Class. Isis. 1833. —
Schmidt. Sp. A. M. pag. 54. —
Schmidt. Sp. A. M. pag. 55. —

Spic. tr°. ac. f.

ᔕ (stout).

∧

rut. rut. (minute).

Loc. Venice (O. S.), Caspic Sea (Czern.) — Zara (O. S.) — Muggia (O. S.). Triëst (Vosm.).

Schmidt has not seen the bows. I have found them however in the original specimens.

2. * ***Esperia tunicata*** O. S. '62.

Synon. ? Esperia Bowerbanki O. S. '62.

Litt. Schmidt Sp. A. M. pag. 55.

Spic. tr. ac. (tr. ac.).

ac^2.

ᔕ (according to Schmidt; I have not found them in the original specimen).

rut rut.

Loc. Zara (O. S.), Triëst (Vosm.) — Muggia, Quarnero, Triëst (O. S.).

It is not impossible that Schmidt's *Esp. tuberosa* is identical with *Esp. tunicata*.

3. ? ***Esperia tuberosa*** O. S. '68.

Litt. Schmidt. Sp. K. A. pag. 26 (without illustr.).

Spic. tr. ac. f.

ac^2. (very minute).

ᔕ

rut. rut.

Loc. Zara.

Perhaps identical with the preceding, *Esp. tunicata* O. S.

4. * ***Esperia Syrinx*** O. S. '62.

Synon. Esperia Lorenzii O. S. '62.

Litt. Schmidt. Sp. A. M. pag. 56.

Spic. tr°. ac.

tr°. ac. f. (tr. ac. f.)

∧

ᔕ (minute, few in number).

rut. rut. (two kinds ?).

Loc. Zara, 20 fathoms, Lissa. — Quarnero.

Schmidt does not mention bows in *Esp. syrinx*, but

I am certain that they do occur; I found them in both the original specimens (*Sp. Syrinx* and *Lorenzii*) in the Joan-Coll. in Graz. The specimen in the Leyden Museum is but a small one; without indication of locality. — The *Esperia borassus* Crtr. 76 is perhaps but a variety of *Esp. Syrinx* (see pag. 149).

5. ***Esperia massa*** O. S. '62.
   Litt. Schmidt. Sp. A. M. pag. '56.
   Schmidt. Erg. N. F. 1875 pag. 117.
   Schmidt. Erg. O. E. 187. pag.
   Spic. tr. ac. f.
   tr. ac.
   ac^2. (minute).
   ∽
   rut. rut.
   Loc. Quarnero, Lesina, Florida, S. W. of Bukenfjord (106 fathoms), Sölsvig.

6. ***Esperia modesta*** O. S. '62.
   Synon. Desmacidon copiosa Brok. '74.
   Litt. Schmidt. Sp. A. M. pag. '57. —
   Bowerbank M. Br. Sp. III p. 265.
   Spic. tr^2. ac. f.
   ∽
   ∧
   rut. rut (two kinds ?)
   Loc. Sebenico, Lesina. — Jersey.

7. ***Esperia velutata*** (Lbkn.). O. S. '62
   Synon. Spongia velutata Lbkn. (acc. to O. S.).
   Litt. Schmidt. Sp. A. M. pag. '57. —
   Lieberkühn. M. A. 1859 pag. 526.
   Spic. tr^2. ac.
   ∽
   rut. rut.
   Loc. Venice.

8. ***Esperia nodosa*** O. S. '64.
   Synon. ? Raphidotheca Marshall-Halli Sav. Kent. 1870.
   Litt. Schmidt. I. Suppl. pag. 33. —

Sav. Kent. Ann. a. Mag. 1870. VI. p. 217.

Spic. tr. ac. f.
(tr°. ac. f.)
(tr. ac.)
ac^2.
rut. rut.

Loc. Lesina. — Cezimbra (Portugal) 500 fathoms.

9. ***Esperia bacillaria*** O. S. '64.

Litt. Schmidt. I. Suppl. pag. 34.

Spic. tr°. ac.
tr°. ac f.
tr^2.
tr^2. f°. (acc. to Schmidt; I could not find them in the original specimen).
rut. rut. (few).

Loc. Lesina.

10. ***Esperia aegagropila*** (Johnst.) Crtr. '74.

Synon. Desmacidon aegagropila Bwk. '66.
Halichondria aegagropila Johnst. '42 (acc. to Bwk.).
Esperia sentinella O. S. '68.
Hymeniacidon subclavata Bwk. '66.
Hymeniacidon floreum Bwk. '66.
Rhaphiodesma floreum Bwk. '74.

Litt. Carter. Ann. a. Mag. 1874. XIV. p. 456.
Bowerbank. M. Br. Sp. II p. 352. III p. 163.
Johnston. Br. Sp. pag. 119. —
Schmidt. Sp. K. Alg. p. 30. —
Bowerbank. M. Br. Sp. II p. 209. III p. 93. —
Bowerbank. M. Br. Sp. II p. 190. —
Bowerbank. M. Br. Sp. III. p. 94.

Spic. tr°. ac. (tr. ac.).
tr. ac. f. (tr°. ac. f.).
ᔓ
rut. rut.

Loc. Cornwall, Brighton, Hastings, Guernsey (Bwk.) ? S. Coast of France (O. S.). — Tenby (Bwk.). — Harris, Belfast, 15 fathoms. (Bwk.).

11. ***Esperia diaphana*** O. S. '70.
Litt. Schmidt. Sp. Atl. Geb. pag. 57.
Spic. tr. ac.
rut. rut. (two kinds).
Loc. Florida, 140 fathoms.

12. ***Esperia robusta*** (Bwk.) Vosm.
Synon. Isodictya robusta Bwk. '66.
Desmacidon Jeffreysii. Bwk. '66 (acc. to Bwk.).
Oceanapia Jeffreysii Norman '68. (acc. to Bwk.).
Esperia renieroides O. S. '70.
Litt. Bowerbank. M. Br. Sp. II p. 304.
Bowerbank. M. Br. Sp. II p. 347. III p. 157.
Schmidt. II Suppl. p. 18. —
Norman. Rep. Brit. Assoc. '68. p. 334. —
Schmidt. Sp. Atl. Geb. pag. 57. (without illustr. of the spic.).
Spic. ac^2.
$\subset\!\supset$ (minute, rather numerous).
rut. rut. (acc. to Schmidt.) 1866.
Loc. Shetland. — Florida (O. S.).

13. ***Esperia immitis*** O. S. '70.
Litt. Schmidt. Sp. Atl. Geb. pag. 57.
Spic. tr^{o}. ac.
$\subset\!\supset$?
rut. rut. (two kinds ?).
Loc. Florida, 128 fathoms.

14. ***Esperia macilenta*** (Bwk.) Vosm.
Synon. Hymeniacidon macilenta Bwk. '66. —
Desmacidon similaris Bwk. '74.
Litt. Bowerbank M. Br. Sp. II p. 176. III p. 84. —
Bowerbank M. Br. Sp. III p. 312 and 319.
Spic. tr. ac.
$\subset\!\supset$
$\wedge$
rut. rut.
Loc. Island Herm. — Jersey.

15. ***Esperia scandens*** (Bwk.) Vosm.

Synon. Halichondria scandens Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 259, III p. 112.
Spic. tr. ac. sp.
tr°. ac. sp. (f.).
tr°². (tr°². sp.).
„bipocillated" (= ∽ ?).
rut. rut.
Loc. Shetland.

16. ***Esperia nigricans*** (Bwk.) Vosm.
Synon. Halichondria nigricans Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 266, III p. 113.
Spic. tr². sp.
tr. ac. sp.
„bipocillated" (= ∽ ?).
rut. rut.
Loc. Orkney's (?), Hebrides (?), Strangford Lough, Hastings.

17. ***Esperia Pattersoni*** (Bwk.) Vosm.
Synon. Halichondria Pattersoni Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 255, III p. 115.
Spic. tr². sp. (tr°². sp.)
tr. ac. sp.
rut. rut.
Loc. Strangford Lough.
I must consider this species as a generic variety of *Amphilectus anceps* (O. S.) Vosm. [see pag. 119].

18. ***Esperia Hyndmani*** (Bwk.) Vosm.
Synon. Halichondria Hyndmani Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 264, III p. 115.
Spic. tr. ac. sp.
tr². (or ac² ?)
„bipocillated". (= ∽ ?)
rut. rut.
Loc Strangford Lough, Moray Frith, Hastings.

19. ***Esperia ingalli*** (Bwk.) Vosm.
Synon. Halichondria ingalli Bwk. '66.
Litt. Bowerbank. M. B. Sp. II p. 258, III p. 117.

Spic. tr. ac. sp.
tr°. ?
ᔕ
rut. rut.
Loc. Hastings, Moray Frith.

20. ***Esperia lobata*** (Mont) Vosm.
Synon. Isodictya lobata Bwk. '66.
Spongia lobata Mont. '18 (acc. to Bwk.).
Tupha lobata Gray. (acc. to Johnst.).
Spongia limbata Mont. (acc. to Johnst.).
Litt. Bowerbank. M. Br. Sp. II p. 326, III p. 148. —
Montagu. Br. Sp. pag. 85.
Fleming. Br. Anim. p. 526. —
Gray. Brit. Pl. I p. 356. —
Johnston. Br. Sp. p. 168.
Montagu. Brit. Sp p. 111.
Gray. Brit. Pl. I p. 360.
Fleming. Brit. Anim. p. 526.
Spic. tr. ac. (two kinds).
ᔕ
rut. rut.
Loc. Devonshire-Coast, Plymouth, Coast of Ireland.

21. ***Esperia constricta*** (Bwk.) Vosm.
Synon. Desmacidon constrictus Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 350, III p. 181 and 183.
Spic. tr. ac. f.
ac. ac. NB.
tr. ac. ?
ᔕ
rut. rut. (two or three kinds).
Loc. Shetland.

22. ***Esperia expansa*** (Bwk.) Vosm.
Synon. Halichondria expansa Bwk. '74.
Litt. Bowerbank M. Br. Sp. III p. 207 and 212.
Spic. tr. ac. sp. (two kinds).
rut. rut. (two kinds?)

Loc. Skye.

23. ***Esperia sordida*** (Bwk.) Vosm.
Synon. Raphiodesma sordida Bwk. '74.
Litt. Bowerbank. M. Br. Sp. III p. 224 and 230.
Spic. tr°. ac f. (two kinds).
∧
ᔕ
rut. rut.
Loc. Jersey, Ramsgate.

24. ***Esperia lingua*** (Bwk.) Vosm.
Synon. Raphiodesma lingua. Bwk. '74.
Hymeniacidon lingua. Bwk. '66.
Litt. Bowerbank. M. Br. Sp. II p. 187, III p. 119 and 237.
Spic. tr. ac. f.
ᔕ
rut. rut.
Loc. Shetland, Western Islands, Scotland.

25. ? ***Esperia intermedia*** O. S. '74.
Litt. Schmidt. II d. N. E. pag. 433.
Spic. „unspitzig" (= ?)
rut. rut. (two kinds?)
Loc. Arendal?

26. ***Esperia rotalis*** (Bwk.) Vosm.
Synon. Desmacidon rotalis Bwk. '74.
Litt. Bowerbank. M. Br. Sp. III p. 323.
Spic. tr. ac.
ᔕ
rut. rut.
Loc. Hastings.

27. ***Esperia stolonifera*** Merejk. '78.
Litt. Merejkowsky. Eponges M. Bl. pag. 23.
Spic. tr. ac. (f.).
tr^2.
tr°. ac.
rut. rut.
Loc. White Sea.

28. ***Esperia affinis*** (Crtr.) Vosm.
Synon. Raphidotheca affinis Crtr. '79.
Litt. Carter. Journ. R. Micr. Soc. p. 497.
Spic. tr. ac.
rut. rut.
Loc. N. Atl. Ocean, 363 fathoms.

29. ***Esperia cupressiformis*** Crtr. '74.
Litt. Carter. Ann. and Mag. 1874. XIV. p. 215.
Spic. tr. ac. f.
tr°. ac. f.
$\wedge$
„forcipiform" (the extremities swollen).
rut. rut.
Loc. Atl. Ocean; between the North of Scotland and Färoë Islands, deep sea.

30. ***Esperia bihamatifera*** (Crtr.) Vosm.
Synon. Esperia cupressiformis var. bihamatifera Crtr. '76.
Litt. Carter. Ann. a. Mag. XVIII p. 318.
Spic. tr. ac. f.
tr°. ac. f.
$\subset\supset$
rut. rut. (two kinds).
Loc. „Chops of the English Channel?"

31. ***Esperia lucifera*** O. S. '73.
Litt. Schmidt. Erg. Ostsee Exp. p. 148. (the illustr. in Erg. N. F. !)
Spic. tr. ac. (tr°. ac.)
ac^2. (minute).
$\subset\supset$
rut. rut. (two kinds).
Loc. Arendal.

32. ***Esperia placoides*** Crtr. '76.
Litt. Carter. Ann. a. Mag. XVIII p. 316.
Spic. tr°. ac. f.
$\wedge$
$\subset\supset$
rut. rut.

Loc. N. N. W. of the Shetland Islands, 345 fathoms.

33. ? ***Esperia borassus*** Crtr. '76.

Litt. Carter. Ann. a. Mag. XVIII p. 317.

Spic. tr°. ac. f.

∽

∧

rut. rut.

Loc. ? Cape St. Vincent, 374 fathoms.

34. ***Esperia radiosa*** (Bwk.) Vosm.

Synon Raphiodesma radiosa. Bwk. '76.

Litt. Bowerbank. Proc. Z. Soc. p. 773.

Spic. tr. ac.

∽

rut. rut.

Loc. Savanilla (South America).

35. ? ***Esperia irregularis*** Czerniawsky '78.

36. ? ***Esperia Stepanovii*** Czerniawsky '78.

37. ? ***Esperia muscoides*** Czerniawsky '78.

These three Sponges are described as new by Czerniawsky, Bull. Soc. Nat. de Moscou. 1878. but in the Russian language, and so no further references can be given about them.

Genus XIII. Sceptrella O. S. '70.

Rods verticillately spined, having moreover spines at both ends; also smooth rods. Anchors inequiended.

1. ***Sceptrella regalis*** O. S. '70.

Litt. Schmidt. Sp. Atl. Geb. p. 58.

Spic. tr. tr. sp. [„verticillately spined cylindrical" Bwk.; „Schach-figurenförmig" O. S.]

(tr. ac. sp.)

rut. rut.

Loc. Florida, 262 fathoms.

2. ***Sceptrella triloba*** O. S. 75.

Litt Schmidt. Erg. M. F. p. 119.

Spic. tr. ac. f (two kinds).
tr. tr. sp.
Loc. S. W. of Bukenfjord, 106 fathoms.

Genus XIV. Clathria O. S. '62. p. p.; char. emend. Vosm

Rods smooth or spined, „echinating." Anchors minute, equiended.

I have found that the genus *Clathria* of Schmidt possesses distinct, often very numerous anchors and bows; so it is to be placed under the *Desmacidinae*. But not all the species, described by Schmidt, belong to the same genus. Prof. Oscar Schmidt was so kind as to send me original specimens; unhappily he had not specimens of all his species, and so the question remains undecided as regards *Cl. rectangulosa*.

1. ***Clathria coralloides*** O. S. char. emend Vosm.
Synon. Spongia coralloides Olivi. (acc. to Schmidt).
Spongia clathrus Esp. (acc. to Schmidt).
Grantia coralloides Nardo. (acc. to Schmidt).
Halichondria corona Lbkn. '59. (acc. to Schmidt).
? Clathria rectangulosa. O. S. '70. (acc. to Schmidt).
Litt. Schmidt. Sp. A. M. p. 58.
Schmidt. Sp. K. A. pag. 9. —
Olivi. Zoologia Adriatica.
Esper. Pflanzenth. II Taf. 9. —
Nardo. Spong. Classif.
Lieberkühn. M. A. 1859. pag. 521.
Schmidt. Sp. Atl. Geb. p. 60.
Spic. tr. ac. (tr°. ac.)
tr. ac. f. (tr°. ac. f.).
tr. ac. sp. (very rare).
$\wedge$
anc^2. (minute).
Loc. Triëst, Zlarin, Lesina, Mediterranean. ? Florida, 7 fathoms.

I have examined Schmidts original specimen, for which I am indebted to the kindness of Prof. F. E. Schulze, and many other specimens, which I found in the Adria. There are but a few Sponges that have so characteristic a „*habitus*" as *Clathria coralloides*, and so no confusion as to the species is possible. In all these I found plenty of anchors. At the same time I could see that the keratode-fibre frequently varies in strength. I propose therefore to recognise two varieties; one is very soft (*var. mollis*), the other on the contrary has extremely strong keratode-fibre (*var. ceratodes* [1]). The Leyden Museum possesses of this latter variety two very interesting specimens from the Mediterranean. The strong fibre prevails here; only a few spicules occur. Between this variety and the soft one, there are naturally a great many transitions.

2. * ***Clathria compressa*** O. S. '62. char. em. Vosm.
   Synon. Spongia clathrus. Var. Esp. (acc. to Schmidt).
   Litt. Schmidt. Sp. A. M. pag. 58.
   Spic. tr. ac.
   tr. ac. f.
   (tr°. ac., tr°. ac. f.).
   tr. ac. sp. (much smaller than the smooth ones).
   tr. tr. ?
   ∧
   anc[2]. (minute).
   Loc. Triëst.
3. ***Clathria morisca*** O. S. '68. Char. emend. Vosm.
   Litt. Schmidt. Sp. K. A. p. 9.
   Spic. tr. ac. sp.
   tr. ac. sp. f.
   tr°. ac.
   tr°. ac. f.
   ∧ (rare).
   rut[2]. (minute).
   Loc. Algiers.

1) κερατώδης, horny.

The above mentioned spicules are found in an original specimen, sent to me by Prof. Schmidt.

4. * ***Clathria lobata***. nov. spec.

Spic. tr. ac. f. (tr° ac. f.).
tr. ac. sp. (strongly spined).
ac^2. (rare).
tr^2.
$\wedge$ (sp.).
$\smile$
anc^2.

Loc. Cape of Good Hoope. [Mus. L. B.].

The Leyden Museum possesses two beautiful specimens of this Sponge. One has no indication of locality, the other is from the Cape of Good Hope.

The Sponge, which in the dried state is pure white, is rather elastic on account of the keratode-fibre. It forms more or less flat, branching lobes.

Very characteristic for this species are the bows, the ends of which are spined. (Schmidt describes quite such bows of his *Suberites arciger* [1]). The anchors are small but rather stout, few in number. The spines of the tr. ac. sp. are very strong, and bent towards the blunt end of the spicule. In the formula I have designated with a $\smile$ the small spicules which are often almost bent into a circle. I could not distinctly see whether the ends are blunt or pointed. Also in the following Sponge these spicules occur.

It seems to me not impossible that Schmidt's *Suberites arciger* is indeed a *Clathria*, closely allied to our *Clathria lobata*. But as I have not seen an original of it, I can not speak definitely.

5. * ***Clathria ulmus*** nov. spec.

Spic. tr°. ac.
tr° ac. f. (tr. ac. f).
tr. ac. sp.

---

1) Grundzüge einer Spongien-Fauna des Atl. Gebietes pag. 47.

⌣

? ⋀ ? (very rare).

anc^2. (small). [Mus. L. B.]

The Leyden Museum possesses four specimens of this Sponge, all being in the dried state. The fibre is extremely strong, especially in the stem, which is ramified, so as to form a complex of branches, not unlike the top of an elmtree.

6. * ***Clathria Reinwardti*** nov. spec.

Spic. tr. ac.

tr°. ac.

(tr^2.).

tr. tr. sp. (tr. ac. sp.).

anc^2.

Loc. Moluccas. [Mus. L. B.].

I found in the Leyden Museum a Sponge from the Moluccas, with a label: *Spongia cannabina* Esp. XLV. Apparently the Sponge has been determined only from superficial inspection. Now Schmidt, and Ehlers after him, have demonstrated that Esper's *Spongia cannabina* is an *Axinella* O. S. Our Sponge however possesses no *axis*, but is a distinct *Clathria*. The echinate position of the spined spicules show this. The Sponge is not ramified, but forms a flat strip. The spined spicules are short and for the most part not sharp pointed; they are represented in the formula by tr. tr. sp. The anchors are minute.

I have named this species after Reinwardt, who brought it from the Moluccas.

7. * ***Clathria elegans*** nov. spec.

Spic. tr. ac.

tr°. ac.

tr. ac. f.

tr. ac. sp.

anc^2.3.

rut^2.

Loc. North-America. [Mus. L. B.].

There are two kinds of smooth rods viz. slender ones,

and stout ones. The spined spicules are rather stout; the spines bent towards the blunt end, which often itself is spinous too. The anchors are minute.

8. ***Clathria clathrata*** (O. S.) Vosm.

Synon. Tenacia clathrata O. S. '70.

Litt. Schmidt. Sp. A. G. p. 56. (without illustration).

Spic. tr. ac.
tr°. ac.
tr. ac. sp.
⋀
ᔓ
anc².

Loc. Antilles. Florida.

9. ***Clathria frondiculata*** (O. S.) Vosm.

Synon. Reniera ? frondiculata O. S. '64.

Litt. Schmidt. I Suppl. p. 59.

Spic. tr. ac. (f.).
tr°. ac. (f.).
tr. ac. sp. (tr. ac. sp. f.).
⋀
ᔓ
anc².

Loc. Triëst.

As Schmidt in '70 did not give any illustration with the description of his *Tenacia clathrata* it is impossible to identify it with another species. According to the enumeration of the spicules however, I should like to unite N°. 8 and 9 under the name *Cl. frondiculata*. As to the enumerated spicules of the latter, I found these in Schmidt's original specimen in the Joanneum in Graz.

10. ***Clathria anchorata*** (Crtr.) Vosm.

Synon. Dictyocylindricus anchorata Crtr. '74.

Litt. Carter. Ann. a. Mag. XIV p. 251.

Spic. tr. ac.
tr°. ac. sp.
anc². (very minute),

Loc. Atlantic Ocean.

11. ***Clathria abyssorum*** (Crtr.) Vosm.
Synon. Dictyocylindricus abyssorum Crtr. '76.
Litt. Carter. Ann. and Mag. XVIII. p. 232.
Spic. tr. ac.
tr°. ac. (the head is denticulated).
tr°. ac. sp.
$\wedge$ (the ends are spined).
rut^2.
Loc. Between the north of Scotland and the Färoë Islands; 345—440 fathoms.

12. ***Clathria microcionides*** (Crtr.) Vosm.
Synon. Plumohalichondria microcionides Crtr. '76.
Litt. Carter. Ann. and Mag. XVIII pag. 236.
Spic. tr°. ac. (the head inconspicuously spined).
tr°. ac. sp.
ac^2.
anc^2. 3. (shaft very long).
Loc. Between the north of Scotland and the Färoë Islands; 440 fathoms.

13. ***Clathria Meyeri*** (Bwk.) Vosm.
Synon. Ophlitaspongia Meyeri Bwk. '77.
Litt. Bowerbank. Proc. Z. Soc. pag. 456.
Spic. tr. ac.
tr. ac. sp.
ac^2. (few).
anc^2. 2.
Loc. Kordo, Island of Mysore, Geelvink-Bay, New Guinea.

14. ***Clathria textile*** (Crtr.) Vosm.
Synon. Cornulum textile Crtr. '76.
Litt. Carter. Ann. and Mag. XVIII pag. 309.
Spic. tr^2. f. (the ends dentate?)
tr. ac. (slender).
$\wedge$
rut^2. (minute).
Loc. 40 miles N. W. of the Shetland Island, 345 fathoms.

15. ***Clathria plena*** (Soll.) Vosm.
Synon. Plocamia plena. Sollas. '79.

Litt. Sollas. Ann. and Mag. IV p. 44.
Spic. $tr^{\circ 2}$. (the head spined).
tr^2.
tr°. ac.
tr. ac.
tr°. ac. sp.
$\wedge$ (very minute).
anc^2.
Loc. West Africa, lat. 15° S.

Sollas has arranged this Sponge under Schmidt's *Plocamia*, but as Schmidt does not speak of anchors or bows, it cannot be so. One may be convinced [1]) that Schmidt has overlooked the anchors, but it is not permissible to arrange new species under this genus when the *original* of *Plocamia* O. S. is not described as possessing anchors!

Although it is very probable that Bowerbank's *Ophlitaspongia papilla* is a *Clathria*, yet it cannot be arranged under this genus, because the author does not speak of anchors. The same is the case with *Clathria oroides* O. S. As is well known Schmidt does not describe anchors; I therefore took occasion to ask him if he still possessed a little fragment which he could place at my disposal. Happily he did, and was so kind as to send me a specimen. Although the Sponge has distinct echinating spicules, it cannot be placed under *Clathria*, for I could not find anchors.

I have found in previous publications several Sponges which I do not know where to place. They are the following:

α. ***Melonanchora elliptica*** Crtr. '74.
Litt. Carter. Ann. a. Mag. XIV p. 212.

---

1) Sollas says, and it is very possible that he is right, „it is just possible that, if present in the other forms, they may have escaped his attention."

Spic. tr. ac
tr°². sp.
anc². („the three arms, growing towards each other, at length unite").
Loc. Between the North Coast of Scotland and the Färoë Islands; deep sea.

β. ***Guitarra fimbriata*** Crtr. '74.
Litt. Carter. Ann. and Mag. XIV p. 210.
Spic. ac². f.
anc². („bordered inside throughout by a fringe directed inwards towards the shaft").
Loc. N. W. Coast of the British Islands; deep sea.

γ. ***Cometella pyrula*** Crtr. '76.
Litt. Carter, Ann. and Mag. XVIII p. 388.
Spic. tr. ac sp.
ac².
rut².
Loc. About 65 Miles N. N. W. of the Orkney's, in 290 fathoms.

It is evident that it cannot be a *Cometella O. S.* because this genus has no anchors!

When we now look back upon the family of the Desmacidinae, we see that at present 16 genera are known:

I. *Desmacodes*,	with	species	16.
II. *Desmacella*,	„	„	2.
III. *Amphilectus*,	„	„	42.
IV. *Sclerilla*,	„	„	2.
V. *Myxilla*,	„	„	22.
VI. *Desmacidon*,	„	„	11.
VII. *Crambe*,	„	„	1.
VIII. *Hastatus*,	„	„	2.
IX. *Cribrella*,	„	„	4.
X. *Chondrocladia*,	„	„	2.
XI. *Cladorhiza*,	„	„	2.

XII.	*Esperia*,	with species	31.
XIII.	*Sceptrella*,	„ „	2.
XIV.	*Clathria*,	„ „	15.
XV.	*Melonanchora*,	„ „	1.
XVI.	*Guitarra*,	„ „	1.

That is a total of 162 species. As I have mentioned before, I had not the *whole* literature on the subject at my disposal. So this number might be augmented still. But on the other hand we may hope that our knowledge about these species will go on increasing and then, I am sure, many will be shown to be synonyms.

It is rather a remarkable fact, that the more one studies the systematical arrangement of Sponges, the more one becomes convinced, that many species are identical. The result of my studies on the *Desmacidinae* has been that plenty of synonyms have been described; when I presumed this to be case, I have united them, but I have never felt the necessity of making two species from one! Schmidt has shown in what manner Sponges can vary; F. E. Schulze has given many examples in his splendid studies on Ceraospongiae, especially in his: »Die Familie der Spongidae." Both Schmidt und Schulze have demonstrated that the word »species" is to be used in a very wide sense.

Literature. (In alphabetic order).

In the following list of books used, I have only given the *principal* titles, not the complete enumeration. I hope to publish soon a complete list of titles of those books and articles in which there has been made mention of Sponges: I refer to that paper.

H. M. D. de Blainville, Manuel d'Actinologie. Paris 1834—37 [Actinol.]

J. S. Bowerbank, A Monograph of the British Spongiadae. [M. Br. Sp.] Vol. I (1866), Vol. II (1872), Vol. III (1874).

„ In the several above mentioned numbers of the Proceedings of the Zoological Society of London. [Proc. Z. Soc.]

H. J. Carter, In: Annals and Magazine of Natural History. [Ann. a. Mag.]

W. Czerniawsky, In: Bulletin de la Société Impériale des naturalistes de Moscou. 1878 (in russian language).

E. Ehlers, Die Esper'schen Spongien. 1870. [Esp. Sp.]

E. J. C. Esper, Die Pflanzenthiere. 3 Vol. 1788—1830.

R. E. Grant, In: Edinburgh Philosophical Journal [Edinb. Phil. Journ.]; and in the: New Philosophical Journal.

G. Johnston, A history of British Spenges and Lithophytes. Edinburgh 1842. [Br. Sp.]

N. Lieberkühn, In: Archiv für Anatomie, Physiologie und wissensch. Medicin. [Müll. Arch.]

E. von Marenzeller, Die Coelenterata, Echinodermen und Würmer der K.K. Oesterreichisch-Ungarischen Nordpol-Expedition [Denkschriften der Mathem. Naturw. Classe der Kaiserl. Akad. von Wissensch. 1877. XXXV.]

C. Merejkowsky, Etudes sur les éponges de la Mer Blanche, in: Mém. de l'Acad. Impér. d. Sc. de St. Pétersbourg. XXVI. 7. 1879. [Ep. M. Bl.]

G. Montagu, An Essay on Sponges, in: Mem. of the Wernerian Nat. Hist. Society. 1818. (NB.) [Ess. on Sp.]

E. Norman, In the above mentioned numbers of the: Annals and Magazine.

M. Sars and G. O. Sars, On some remarkable forms of animal life from the great deeps off the norwegian coast. 1872.

W. Saville Kent, In: Annals and Magazine of Natural History.

Oscar Schmidt, Die Spongien des Adriatischen Meeres. 1862. [Sp. A. M.]

" Supplem. der Spongien des Adriatischen Meeres. 1864. [I Suppl.]

" Zweiter Supplem. der Spong. des Adr. Meeres. 1866. [II Suppl.]

" Die Spongien der Küste von Algier. 1868. [Sp. K. A.]

" Grundzüge einer Spongien-Fauna des Atlantischen Gebietes. 1870. [Sp. A. G.]

" Article "Spongien", in: Zweite deutsche Nordpolarfahrt. 1874. [Zw. Nordp. F.]

" Article: Spongien, in: Jahresbericht der Commission zur wissensch. Unters. der Deutschen Meere in Kiel. V. Zoolog. Ergebnisse der Nordseefahrt. 1875. [Erg. N. F.]

W. J. Sollas, In: Annals of Magazine of Natural History.

C. Wyville Thomson, The Depths of the Sea. 1873.

ADDENDA ET CORRIGENDA.

To add: p. 135:

12. ***Desmacidon compressa*** Ehlers '70.
Synon. Desmacidon compressum Ehl. '70.
Spongia compressa Esp.
Litt. Ehlers. Die Esp. Sp. p. 20 and 31. —
Esper. Die Pflanzenth. Forts. I. 201. Spong. Tab. LV.
Spic. ac^2.
rut^2.
Loc. Norway, Greenland, North-America.

13. ***Desmacidon frondosa*** Ehlers. '70.
Synon. Desmacidon frondosum Ehl. '70.
Spongia frondosa Esp.
Litt. Ehlers. Die Esp. Sp. p. 17 and 31.
Esp. Die Pflanzenth. Forts. I. 192. Sp. Tab. LI.
Spic. tr. ac.
tr. ac. sp.
ac^2.
rut^2.
Loc. India.

14. ***Desmacidon cratitia*** (Esp.) Vosm.
Synon. Spongia cratita Esp.
Rhaphidophlus cratitius Ehlers. '70.
Litt. Esper. Die Pflanzenth. Forts. I. 195. Sp. Tab. LIII. —
Ehlers. Die Esp. Sp. p. 18 and 31.
Spic. tr°. ac.
tr. ac. sp.
ᔕ
anc^2.
Loc. India.

To cancel: p. 121. N°. 37.

INDEX.

[The synonyms are printed in italics].

D.

E.

F.

G.

H.

I.

R.

S.

T.

U.

V.

Z.

NOTE XIX.

ON AN UNDESCRIBED BIRD OF THE TIMALIA-GROUP

MALIA GRATA.

BY

H. SCHLEGEL.

May 1880.

A single skin of this bird was contained in a large collection of birds, made, in 1877, during an expedition to Macassar and the neighboring isle of Saleyer, under the leading of the well known botanical traveller, Mr. Teysmann.

The bird in question belongs evidently to the group of the Timaliae, strongly characterized like the whole tribe of Formicivorae to which it belongs by the vaulded form of the tail, a characteristic which is found back in the owls in a most remarkable way.

In vain have I tried to find for the apparently unknown species a place in one of the numerous genera established in favor of the Timalia-group. It deviates from all of them in its general appearance, by its coloring, and by other modifications in the bill, wings and legs.

It will be seen from the following measures, that the Malia grata is a species of a very considerable size, that the wings are remarkably short, with the secondaries al-

most as long as the primaries, that tibia and tarsus are much elongated, that the hind-toe is long, that all the toes are provided with vigorous claws, and that the bill is only moderately developed.

Measures in Parisian feet:

	Inches.	Lines.
Total length	11	6
Wing to point of primaries	5	
» » » » secondaries	4	8
Tail, inner feathers	5	
» outer »	3	9
Tibia		30
Tarse		23
Middle toe		12
Nail of this toe, in a straight line		5
Hind toe		8
Nail of it in a straight line		6
» » » along its curve		8
Outer and inner toe, each		8
Length of bill from forehead		12
» » » » gape		15
Height of bill at front		4
Width at front		5
Height of bill in the middle of its length		8
Width at this point		2

Bill moderate in size, sensibly curved, with the point somewhat more bent downwards, slightly notched behind this point, the compression reaches beyond the middle of its length, afterwards becoming gradually more large than high. Nostrils basal, forming an oval aperture in no way covered, opening into a tolerably large nosegrove.

Wings short and rounded. First of the primaries twenty-one lines shorter than the fifth, which is the longest of all. Sixth almost as long as the fifth, seventh only two, tenth four lines shorter than the fifth. Secondaries increasing in length from the first to the third, which is

only four lines shorter than the fifth of the primaries. They decrease afterwards in the direction of the tertiaries.

Tibia very long and robust. Tarsi, long, robust, covered on the foreside with eleven shields, on the hinderside above with one entire shield, beneath with five shields and small scales. Nails very robust with the under-curve divided into two semilunar excisions. Tail strongly rounded.

Upper mandible black, but its margins, like the whole under mandible light ochraceous.

Whole upperside of the bird of a pure olive-color, washed on the neck, mantle and angle of wing with limon-yellow, with a shine of rufous brown on the tail-feathers and tinged with light yellowish brown on the outer webs of the primaries.

Chin, throat and chest of a dirty greenish limon-yellow spreading also over the breast and abdomen, but strongly washed with olive. Underside of wings and tail greyish olive. Flanks, under tail-coverts and feathers of legs olive. Tarse, toes and nails dark brown.

NOTE XX.

A NEW FLEA FROM KERGUELEN-ISLAND

DESCRIBED BY

Dr. O. TASCHENBERG.

Pulex Kerguelensis, sp. n.

Body elongate, of a yellowish brown colour. The inclination of the upper surface of the head commences immediately in front of its hind margin; on a level with the first joint of the antennae this inclination suddenly increases. In front of the point of insertion of the maxillary palpi the head forms an inconspicuous tooth-like projection. The joints of the maxillary palpi are of about the same length. The triangular maxillae are pointed and rather long. The groove for the antennae is so situated that its hind margin divides the lateral surface of the head into an equal anterior and posterior half. The eye, which is comparatively light coloured, is situated very low, touching the inferior border of the head. The antennae are very similar to those of *Pulex globiceps* Tschb., only the strong bristles on the upper margin of the second joint are absent. The thoracical segments are rather broad. The legs slender, with narrow tarsal joints; they carry numerous spines and are covered with a dense pubescence. The latter is also uncommonly dense on the rest of the body and therefore very characteristic for this species. On

the dorsal plate of each abdominal segment there is a slightly curved row of longer bristles close to the posterior margin and in front of it a large number of shorter hairs which are arranged in 5—6 irregular longitudinal rows. This is similarly repeated on the ventral plates; only the hairs are not quite so numerous, though very numerous still in comparison to other species. The pubescence is especially dense on the inferior and posterior surface of the last segments. There are 3—5 more or less regular rows of bristles on the thoracical segments as on the abdomen. The head too is similarly provided with a large number of short hairs, which are everywhere of a light colour. The adhesive disk at the apex of the abdomen in the male is very large and semiovate, and provided at its free margin with rather long bristles, which are very regularly placed.

The thick first tarsal joint of the fore legs is of the same length as the fifth joint, which however is much more slender; the second joint is not considerably shorter than the first or fifth, the third somewhat shorter than the second, and the fourth again a little shorter than the third. The second tarsal joint of the middle legs is equal in length to the fifth, and to the third and fourth together; the first joint is somewhat longer. The first tarsal joint of the hind legs surpasses the second by a third of its length, the third and fourth together are somewhat shorter than the second, and the fifth somewhat longer and more slender than the third.

Length of the male 2 mm., that of the female 3—4$^1/_2$ mm.

The four specimens examined were collected the 16th October 1874 by the Rev. A. E. Eaton on Kerguelen-Island (Royal Sound), at the occasion of the Expedition for the observation of the Transit of Venus, infesting a specimen of *Pelecanoides urinatrix* Gmel.

Halle a. S., April 1880.

NOTE XXI.

ON SOME PODOPHTHALMOUS CRUSTACEA, PRESENTED TO THE LEYDEN MUSEUM BY Mr. J. A. KRUYT, COLLECTED IN THE RED SEA NEAR THE CITY OF DJEDDAH.

BY

Dr. J. G. DE MAN.

The carcinological collections of the Leyden Museum consist, besides of the European types, chiefly of forms from the East Indies and from the Japanese seas, the former being collected by the various travellers of our establishment, the latter being the types of the celebrated work of Mr. de Haan. We cannot therefore be too grateful to have found in Mr. J. A. Kruyt, Dutch Consul at Djeddah, Arabia, a man, who purposes to collect the Fauna of the Red Sea for the Museum. He already has made an interesting beginning, by presenting to us a remarkable collection of fishes and invertebrate animals; it is of the carcinological part of the latter that I may be allowed to say a few words.

1. *Menoethius monoceros* (Latr.) M. Edw.

A male and a female were collected; in the male specimen the tubercles of the upper surface of the carapace are much less developed than in the female.

2. *Actaea nodipes* Heller.

Heller, Sitzungsber. Wiener Akad. Bd. 43, pag. 329., Alph. Milne Edwards, Nouv. Archiv. I, pag. 274.

A very fine female specimen was collected at Djeddah, entirely agreeing with the description, given by Heller. Breadth of carapace 19 mm., length 13 mm. The upper surface of the equally sized hands of the chelipedes are provided with tubercular granulated prominences, the outer and lower surfaces are ornamented with minute granules, placed partially in longitudinal rows.

3. *Actaea rufopunctata* M. Edw.

A female *Actaea*, provided with eggs, was in the collection, greatly resembling the above mentioned species; still I hesitate to call our specimen identical with it. Our specimen entirely agrees with the description and the figure of this species, given by Mr. Alph. Milne Edwards (Nouv. Arch. t. I, pag. 268), but it is not of the described size. In our specimen the carapace is only 14 mm. broad and 9 mm. long, while the adult *Actaea rufopunctata* has a size of 40 mm. The carapace is greatly enlarged, convex, and its surface is divided by very large and deep grooves anteriorly as well as posteriorly into a great number of regions; these grooves are covered with a dense pubescence, the upper surface of the carapace being covered with some scattered hairs. The several regions are covered with close granules. The front is very deflexed, somewhat emarginate in the middle, but for the rest little prominent. Protogastrical regions divided by a longitudinal groove into two regions; cardiacal region however scarcely provided with a trace of a longitudinal groove. The antero-lateral margin is divided by four incisions into five little prominent rounded lobes, the anterior of which is the little prominent outer angle of the orbit and flows almost together with the second lobe. The legs agree entirely with the quoted figure.

Except by its smaller size our specimen thus wholly agrees with *Actaea rufopunctata* M. Edw.; it is of a beautiful purplish red colour, with white spots on the epigastrical regions, on the protogastrical regions and on the greater part of the posterior surface of the carapace; but the mesogastrical and cardiacal regions are again for the greater part of a purplish red.

I have found in the Museum still another *Actaea* from the Timor seas, which belongs most positively to our species and which differs from the Djeddah specimen only by the frontal lobes being a little emarginate at the outer side and by the longer hairs of the upper surface of the carapace. This species therefore appears to be a little variable.

4. *Actaea hirsutissima* Rupp.

There is a fine female specimen in the collection, with the carapace 20 mm. broad and 13 mm. long.

5. *Etisus maculatus* Heller.

Heller, l. c. pag. 332.

There are five young specimens of this species in the collection; it appears to me however to be very probable that this species may be identical with *Etisus laevimanus* Randall, which is found on the East coast of Africa throughout the whole Indo-Pacific Region as far as Japan, near the Sandwich islesand New-Caledonia. Our five specimens agree at least entirely with specimens of *Etisus*, which I believe to belong to *Etisus laevimanus* Randall. (the description of which species being not in my hands) and which are labelled in the Museum as coming from Padang, Xulla-Bessy, Timor and Nossy-Faly.

The largest of our five Djeddah specimens, a female, has the carapace 22 mm. broad; the arms of the nearly equal anterior legs are but little prominent beyond the

carapace; this specimen is only ornamented with the large light spot, which covers the upper margin of the orbit as also a part of the upper surface of the carapace immediately behind the orbits and at their inner side. In another somewhat smaller specimen on the contrary the upper surface of the carapace is covered everywhere with numerous small spots, but the three other, still younger specimens are unspotted again.

6. *Chlorodius niger* (Forsk.) Rupp.

Ruppell, Beschr. und Abbild. etc., pag. 20.

Eight, for the greater part young specimens have been collected. The breadth of the carapace of the largest specimen (♀) is 20 mm. Mr. Alph. Milne Edwards has already shown this species to be very variable, which is also proved by specimens of the Leyden Museum. So in three specimens, collected by Wienecke in the Timor seas, the lateral teeth of the carapace are more rounded and tubercular, these teeth being much more acute in the Red Sea specimens; in the same manner the tubercles that are found behind the second and third tooth, are more prominent in the Djeddah, than in the Indian specimens.

The Museum contains also a young specimen from the Halmahera seas and a young sample from Java: the Java specimen was labelled *Cancer*, *Xantho*, *denticulatus* de Haan. This species, mentioned by Herklots (Symbolae carcinologicae, pag. 10), is therefore identical with *Chlorodius niger* Rupp. Mr. Hilgendorf (Baron von der Decken's Reise, pag. 74) also believes the *Chlorodius depressus* Heller to be identical with the species described by Mr. Ruppell, which I too think to be very probable.

7. *Phymodius obscurus* Lucas.

Alph. Milne Edwards, Nouv. Arch. du Mus. t. IX, pag. 220.

A single fine male *Phymodius* is in the collection, which I think identical with the above mentioned species, which

as stated by Mr. Milne Edwards, occurs in the Red Sea. This species may be also identical with *Xantho dehaanii* Krauss = *Chlorodius dehaanii* Heller (Sitzungsber. Wiener Akad. Bd. 43, pag. 337).

The carapace is $16^1/_2$ mm. broad and 11 mm. long. The whole surface of the carapace is divided into numerous regions, separated by tolerably deep grooves from one another, the surfaces of which being covered with many bright granules, which are equally large on the epigastrical lobes, as on the protogastrical lobes divided by a longitudinal groove into two parts, and on the hepatical regions, so that they may be observed with the naked eye, but they are much more minute on the mesogastrical and branchial regions. — The front has four lobes, the two median ones are broad and granular, though rounded, separated by a deep incision from one another and by a larger emargination from the two outer dentiform small lobes. Besides the external orbital angle, there are four lateral teeth on the lateral margins of the carapace, which are also granular and of which the two posterior are a little more acute than the two anterior ones. Of the anterior legs the left one is a little larger; the arms project but little beyond the lateral margins of the carapace, their upper margin is armed with some more or less acute tubercles. Also the upper surface of the wrist, and the upper and outer surface of the hands are covered with dark, more or less acute tubercles, those of the outer surface of the hands are placed in longitudinal rows, but the under and inner surfaces of the hands are smooth. The fingers are black, there are a few granules on the upper surface of the mobile finger near the articulation and the fingers are provided with many longitudinal grooves; the spoonlike excavated ends have a white margin. The ambulatory legs are covered with pinnate long hairs, the upper margin of the meropodites is armed with a row of sharp spines and the outer surface is granular. The abdomen has five segments.

8. *Trapezia rufopunctata* (Rupp.) Heller (nec Herbst).
Heller, l. c. pag. 350.

Four fine specimens of this species (2 ♂ and 2 ♀) were collected in the sea of Djeddah. This species may at first sight be distinguished by its colour, the distinctly developed frontal teeth, which are very similar to those of *Trap. cymodoce* Herbst, and by the distinct acute tooth on the lateral margin of the carapace. I have found in the Museum a fine *Trapezia*, presented by Mr. Milne Edwards and collected in the Nukahiwa seas; this specimen is labelled as *Trap. rufopunctata* Herbst and I believe it to be this species. But I think *Trap. rufopunctata* Herbst to be another than *Trap. rufopunctata* (Rupp.) Heller; to the latter a new name should be given. In the species, described by Herbst (Krabbe und Krebse, tab. 47) the four teeth of the front are all very acute, acuminate and separated by deep incisions, the external teeth are a little higher than the median teeth, directed outward with their points and with an almost vertical external lateral margin; the internal angles of the orbits are however also rounded and are less prominent than the frontal teeth. — Mr. Hilgendorf is wrong in believing these two species to be identical. — *Trap. rufopunctata* Rupp. (Heller) differs from *Trap. cymodoce* Herbst moreover by its hands being quite smooth and the upper margin of these hands not being hairy on its outer surface.

Breadth of carapace of an adult female specimen of *Trap. rufopunctata* (Rupp.) Heller, provided with eggs, 17 mm., whereas the Nukahiwa specimen of the true *rufopunctata* of Herbst has a carapace of 25 mm. broad.

9. *Trapezia guttata* Rupp.
Heller, l. c. pag. 351.

Two fine female specimens of this sharply characterized species were collected, which agree in all points with the

description given by Mr. Heller; the breadth of the carapace is $9^1/_3$ mm.

10. *Trapezia digitalis* Latr.
Heller, l. c. pag. 352.

Six very beautiful specimens (3 ♂ and 3 ♀) are in the collection.

They agree entirely with the quoted description, but I will remark that the lateral margins of the carapace, though not being armed with a lateral tooth, are however provided with a very small scarcely visible incision, which is to be seen only by a magnifying glass, even in the adult specimens. — Our specimens are of a very dark blackbrown colour, but the lower part of the outer and inner surface of the hands, as also the fingers are of a light yellowish gray colour and the lower surface of the ambulatory legs are marked purplish red.

11. *Trapezia cymodoce* Herbst.
Synon.: *Trap. coerulea* (Rupp.) Heller.

Heller, l. c. pag. 348. — Miers, in: Annals and Mag. of Nat. Hist. for Nov. 1878, pag. 409.

There are sixteen fine specimens of this species (8 ♂ and 8 ♀) in the collection, which agree entirely with the description, given by Mr. Heller. As has been shown already by Mr. Miers in his note on some Crustacea from the Gulf of Akaba (l. c.), this species may be characterized by the *distinct lateral* tooth of the carapace, the *distinctly developed frontal teeth*, the *blunt* tubercle on the inner angle of the carpopodite of the anterior legs and *the upper part of the outer surface of the hands being covered with hairs*, which characteristics are not found in the other species. — The anterior margin of the arms is armed

with 5—6 sharp serrate teeth; the arms project very much beyond the lateral margins of the carapace.

The Leyden Museum contains specimens of this species from the Red Sea, as also from the Indian seas (Amboina, Manipa, Xulla-Bessy), which entirely agree with each other. We have also received two specimens from New-Caledonia, presented by Alph. Milne Edwards under the name of *Trap. dentata* M'Leay (Nouv. Archiv. du Musée t. IX, pag. 261), which also agree completely with our species, so that *Trap. dentata* A. M. Edw. is identical with *Trap. cymodoce* Herbst. But *Trap. cymodoce* A. M. Edw. is identical with *Trap. ferruginea* Latr. Our species is positively the true *cymodoce* Herbst and the latter is identical with *Trap. coerulea* Rupp., 1°. because the teeth of the front project more or less in the several individuals, because the number of the teeth on the anterior margin of the arms varies from 5—7 and because the colour, at least of specimens preserved in spirits, is of no use in characterizing the species, some of our specimens having a bluish gray coloured carapace, others a reddish brown, others again a yellowish brown coloured. But always the tooth on the lateral margin of the carapace is sharp and acute, the upper part of the outer surface of the hands is hairy and the inner angle of the carpopodite has a blunt tubercle. It may also be remarked, that the description given by Gerstaecker of the species of Herbst is taken from the single original specimen, the frontal teeth of which are somewhat less prominent than in the typical specimens.

12. *Trapezia ferruginea* (Latr.) Heller.

Heller, l. c. pag. 349. — Miers, l. c. pag. 407.

Fifteen very fine specimens (12 ♀, 3 ♂) were collected in the Djeddah sea. This species has quite the facies of *Trap. cymodoce* Herbst, but may be recognized by the following characteristics. The lateral margins of the carapace

are provided only with a very rudimentary blunt prominence, placed comparatively more forward than the acute lateral tooth of *cymodoce* and further the upper margin of the hands is more rounded, less cristate and their outer surface is quite smooth, not hairy as in the species described by Heller. For the rest the two species present a very great resemblance. The frontal teeth are more or less shaped as in *cymodoce*, but the median teeth are mostly a little broader and the external ones have an oblique outer lateral margin; the internal angles of the orbits are however less prominent than the front, are directed obliquely outwards and rounded. The upper part of the inner and outer surface of the hands, as also the upper surface of the wrist and of the arms are somewhat minutely punctate, but for the rest quite smooth; in some specimens the hands are of the same size, in others they are unequal, as in the adult male, the left hand of which is the larger. The arms project very much beyond the lateral margins of the carapace, and their anterior margins are armed with four or six small teeth, quite as in *Trap. cymodoce*; the inner angle of the carpopodite is blunt and the two or three last joints of the ambulatory legs are provided with some hairs. Our specimens preserved in spirits, are very diversely coloured; in some the carapace is of a bluish gray colour, in others of a reddish brown or reddish gray or sometimes of a ferrugineous colour.

The breadth of the carapace of an adult male is $13^1/_2$ mm., of the largest female specimen 18 mm.

The Museum received also a young female specimen, from New-Caledonia, presented by Mr. Alph. Milne Edwards under the name of *Trap. cymodoce* Herbst; it agrees however quite with our specimens, so that *Trap. cymodoce* A. Milne Edwards (Nouv. Arch. du Mus. t. IX, pag. 260) is identical with *Trap. ferruginea* Latr. The latter species has therefore as extensive a geographical distribution as *Trap. cymodoce* Herbst. I also presume *Trap. areolata* (var.

inermis) A. Milne Edwards to be only a diversely coloured, perhaps local variety of *Trap. ferruginea*.

13. *Tetralia cavimana* Heller.

Heller, l. c. pag. 353.

A fine female specimen of this species was found at Djeddah; it is characterized by the deep hairy groove on the outer surface of the larger hand. — The carapace is 17 m.m. broad and 14 m.m. long. — A. Milne Edwards presumes this species to be identical with *Tetralia glaberrima* Herbst.

14. *Thalamita prymna* Herbst.

Alph. Milne Edwards, Arch. du Mus. X, pag. 360.

There are 7 specimens in the collection. In all these specimens the fourth tooth of the lateral margins of the carapace is rudimentary and the fifth or last tooth a little smaller than the three anterior ones. In young specimens, which have a carapace of a breadth of less than 45 m.m., there is found no crest between the elevated ridge, found on the outer surface of the hands near the inferior margin and which proceeds to the tip of the immobile finger, and the spines of the upper surface; such a crest then appears gradually, so that specimens, in which the carapace is 65 m.m broad, show already a granulated crest on the middle of the outer surface of the hands. The basal joint of the external antennae is provided with a short high crest near the antennae, which is armed with two or three sharp spines.

15. *Thalamita savignyi* A. Milne Edw.

Thalamita admete, Audouin, Egypte, Crustacés, par Savigny, Pl. IV, fig. 4. — Alph. Milne Edwards, Archiv du Mus. X. pag. 357. —

A fine specimen was found at Djeddah, a female provided with eggs, having a carapace of 31 m.m. broad and 19 m.m. long. — Upper surface of the cephalothorax a

little convex, the antero- and posterolateral parts being however deeper and more concave; the whole surface, but especially the said lateral parts are hairy and the elevated, minutely granulated lines of the surface are very prominent. The median very large frontal lobes have a somewhat emarginated anterior margin and the external lobes are placed a little before the median ones, with a nearly straight margin, almost as long as the latter. The five lateral teeth of the carapace are all acute, the fourth is a little shorter than the others. The crest of the basal joint of the external antennae is provided with a row of very short, tolerably sharp small teeth.

The upper margin of the arms is granular; the wrist is armed, besides with a very sharp spine at its inner angle, with three smaller spines on its upper surface, which is also provided with some granules and elevated lines and is a little hairy. The hands are of a nearly equal size, their upper surface is armed with six sharp spines, placed in two rows and alternating with one another, and the outer surface is provided, besides with the elevated granular ridge near the lower margin which proceeds upon the immobile finger, with two equally granular crests on its outer surface; between these crests some granules may be seen and the surface is hairy. The convex inner surface of the hands is granulated and hairy near its upper margin and provided with two rows of minute granules on the middle; the fingers are ornamented with a black spot before the pale tip. — The penultimate joint of the posterior ambulatory legs is armed with many very small teeth, the meropodites are provided with a hairy groove. — Our specimen is of a purplish red colour, with little yellow spots on the margins of the carapace, which is also of a paler colour at its under surface. —

16. *Thalamita poissoni* Aud.

Audouin, Egypte, Crustacés de Savigny, Pl. IV, fig. 3.

The collection contains three fine male specimens of this

very rare species, which is so little known yet, that a new description may be allowed. As regards the general physiognomy and more especially the shape and the form of the carapace, our species wholly agrees with the Japanese specimens of *Thalamita arcuata* de Haan, which is identical with *Thalamita sima* M. Edw. after Mr. Alph. Milne Edwards. The upper surface is very convex, smooth, somewhat hairy anteriorly and at the lateral parts, minutely punctate, but deflexed towards the front and the lateral parts of the carapace; the median frontal lobes are still somewhat more prominent, being separated from one another by a scarcely visible median incision, the outer lobes are much smaller but straight and directed a little obliquely forward. The anterolateral margins are less arched, directed more straightly backward, though not so much as those of *Thal. admete* Herbst. The first lateral tooth or external orbital angle, is blunt, as in *Thal. arcuata*; the second and third teeth are sharp and quite similar, the fourth tooth is always the smallest of all, in one specimen it is rudimentary, in another it is even absent on one side; the posterior tooth is sharp, directed forward and a little larger than the second or third. The elevated transverse ridges of the upper surface of the carapace are distinctly developed. The basal joint of the external antennae is provided with a smooth, very depressed crest; in *Thal. arcuata* that crest is higher, though also untoothed. The anterior legs are somewhat unequal, either the right or the left leg being the larger. The small hand resembles tolerably that of *Thal. arcuata*, but the large hand is higher and of a less slender shape; the arms are quite *smooth*, besides the somewhat granular upper margin, the anterior margin is armed with three more or less sharp teeth; the carpopodite is armed with an acute tooth at its inner angle, but its upper surface is only provided with some smooth elevated lines terminating in blunt prominences. The upper surface of the hands is provided with four spines, which are very sharp in the young specimen, but blunt in the two adult ones,

two on the inner margin and two an the outer margin, one being placed near the articulation of the hand and the other between the two spines of the inner margin; the upper surface of the hands is somewhat hairy between these spines; the convex outer, lower and inner surfaces are quite *smooth*, besides a smooth, scarcely visible crest on the middle of the external surface and an equally smooth crest near the lower margin, that proceeds upon the index. The fingers are grooved and toothed on their inner margins. The male abdomen is formed by 5 joints. The meropodites of the posterior ambulatory legs are slightly grooved, with a sharp spine on the distal end of the lower margin and the lower margin of the penultimate joint is toothed.

Breadth of carapace of the largest specimen 33 mm, length 21 mm.

Though closely allied to *Thal. arcuata* de Haan = *sima* M. Edw., our species may be distinguished at first sight by its *quite smooth*, never granular, very convex hands.

17. *Neptunus pelagicus* L.

Heller, l. c. pag. 355.

A great number of young specimens are in the collection, which are all ornamented with the dark red spot on the inner surface of the hand before the articulation of the mobile finger, as described by Heller.

18. *Metopograpsus messor* Forsk.

Milne Edwards, Ann. Scienc. Nat. 1853, pag. 165.

A single specimen is in the collection. Which may be the difference between *Metopogr. messor* Forsk. and *Grapsus* (*Pachygrapsus*) *aethiopicus* Hilgendorf (Baron v. d. Decken's Reise, pag. 88, tab. 4 fig. 2). Our specimen at least, though entirely agreeing with the figure, positively belongs to *Metopogr. messor*, observed by Forskäl and described also by Heller as found in the Red Sea (and not in fresh water).

19. *Macrophthalmus verreauxi* M. Edw.

Milne Edwards, Annal. Scienc. Natur. 1852, p. 155, pl. 4 fig. 25.

Two fine female specimens were collected in the Djeddah seas. Milne Edwards mentions this species as coming from New-Holland, so that it is distributed throughout the whole Indo-Pacific region, like so many other species.

The carapace is $19^1/_2$ mm. broad (the distance between the external orbital angles) and $11^1/_2$ mm. long; the upper surface of the carapace is convex and smooth, except the somewhat granular branchial regions.

The three lateral teeth are sharp, a little depressed and the first tooth is directed transversely outwards, but not foreward, (as in the quoted figure); the front is a little deflexed and has a very large, somewhat emarginate anterior margin. The legs are smooth, covered with long hairs on the margins and ornamented with variegated dark spots.

20. *Doto sulcatus* (Forsk.) de Haan.

There are ten fine specimens in the collection.

21. *Calappa tuberculata* Fabr.

A single specimen was collected; the species was already mentioned by Heller as found in the Red Sea.

22. *Pagurus varipes* Heller.

Heller, Sitzungsber. Wiener Akad. XLIV, pag. 244, tab. I fig. 1, tab. II fig. 2 & 3.

A fine specimen was collected at Djeddah. This species is closely allied to the Indian *Pag. deformis* M. Edw. (Hist. Nat. Crust. II, pag. 222). Besides the differences of these species mentioned by Heller, I will still add the following: in *deformis* M. Edw. the cornea has half the size as the terminal joint of the eye-peduncles, but in *varipes* it measures only a third of the length of that joint. The

two small triangular teeth on the anterior margin of the carapace are acuminate in *Pag. varipes*, but directed outward and more rounded in *Pag. deformis*. The terminal joint of the left third pair of legs is provided with an elevated crest on its outer surface, which does not occur in *Pag. deformis*. As regards the comparative length of the peduncle of the external antennae, the two species almost agree with each other: for also in *deformis* M. Edw. that peduncle is positively as long as, but not shorter than the eyes and in *varipes* it is indeed a little longer, but not so much as has been figured by Heller. The length of the cephalothorax of our specimen is almost 2 centim.

23. *Coenobita rugosa* M. Edw.

Numerous specimens were collected; they inhabit shells of the following genera: *Terebra*, *Harpa*, *Natica*, *Fusus*, *Triton*, *Nerita*, *Cassis*, *Murex*, *Turbo*, *Purpura*, and *Buccinum*.

24. *Palinurus penicillatus* Oliv.

A fine large specimen is in the collection.

The tubercles of the carapace are non-piliferous, but for the rest it agrees entirely with specimens from the Indian Archipelago, as regards the spines of the interantennal plate etc. But also another specimen in the Museum collection from Padang has the tubercles of the carapace nearly naked, so that I also think as Mr. Miers (l. c pag. 410) *Pal. Ehrenbergii* Heller to be identical with *Pal. penicillatus* Oliv.

25. *Peneus canaliculatus* Oliv.

A single specimen was collected in the Djeddah seas.

26. *Peneus semisulcatus* de Haan.

Two young specimens were collected, which wholly agree with the Japanese types.

Leyden, Mai 1880.

NOTE XXII.

DESCRIPTION OF A NEW SPECIES OF THE FAMILY BRENTHIDAE FROM SUMATRA.

BY

G. POWER.

Trachelizus cylindricornis, sp. n.

Omnino castaneo-fuscus, parum nitidus, sutura maculisque 2 obsoletis in elytris magis saturatis. Capite latitudine vix breviore, antice angustiore, ad basin tuberculis 4 instructo; rostro supra infraque sulcato, ad apicem parum dilatato; antennis ante rostri medium insertis, subcylindricis, articulis 2—8 transversis, perfoliatis, 9—10 magis elongatis, 11 longitudine duobus precedentibus conjunctis fere aequali acuteque attenuato. Thorace sulcato, impunctato. Elytris subparallelis, apice rotundatis ibique prope suturam leviter excisis, profunde sulcatis. Corpore subtus impunctato, metasterno abdominisque segmentis duobus primis sulcatis. — Long. $7^1/_2$ mm., lat. $1^3/_5$ mm.

Entirely of a chestnut color, hardly shining. The head is rounded above, about as long as broad and narrower anteriorly than at the base, where it is provided with four protuberances with notches between them. Eyes large, rather prominent and touching the base. Rostrum about $2^1/_2$ as long as the head, furrowed from the base nearly up to the apex, which is very little dilated; at the under surface the head and the basal portion of the rostrum are

furrowed, the anterior portion is provided with two furrows. Antennae inserted before the middle of the rostrum, as thick as its anterior portion and as long as the head and the thorax together; of the joints the 2nd to the 8th are transverse and perfoliated, the 9th and 10th longer but about of the same thickness, the 11th almost as long as the 9th and 10th together, subcylindrical at its basal half and terminating in a rather sharp point.

Thorax as long as the head and the rostrum together, much narrower anteriorly than at the base, strongly furrowed, not punctuated; its sides somewhat rounded.

Elytra $2^1/_2$ as long and $1^1/_2$ as broad as the thorax, rather strongly notched at the base, the shoulders angulous, the sides subparallel along four fifths of their length, with upturned edges and conjointly rounded at the apex although they have a small notch at the suture; they are provided with deep furrows almost as much curved as in *Trachelizus lyratus* Perroud; the suture is broad, of a somewhat darker color than the rest; two obsolete spots near the suture are darker too.

Under surface of the body not punctuated, metasternum strongly furrowed, the two basal segments of the abdomen are also furrowed, but the furrow is well defined only on the anterior half. Legs short and tolerably stout, thighs clubshaped, the joints of the tarsi thick and very short.

This species is allied to *T. lyratus* Perr. [1]) and *T. Howittii* Pasc. [2]), but easily distinguished by the three apical joints of the antennae being of the same width or hardly broader than the preceding ones, by the apex of the elytra being slightly notched at the suture, etc.

A single specimen captured at Datar, during the scientific Sumatra-Expedition, in May 1877.

Rouen, 1 November 1879.

1) *Annales de la Société Linnéenne de Lyon.* 1864. p. 139. — *Mélanges Entomologiques.* IV. p. 92.

2) *Annals and Magazine of Natural History.* 4 th series, vol. X (1872) p. 320.

NOTE XXIII.

DESCRIPTION OF A NEW SPECIES OF THE FAMILY SCOLYTIDAE FROM SUMATRA.

BY

W. EICHHOFF.

Xyleborus (?) punctatissimus, sp. n.

Oblongus, ferrugineo-testaceus, tenue pubescens, subnitidus, macula discoidali thoracis elytrisque postice piceis; thorace subtransverse, post medium dilatato, antrorsum angustato, angulis posticis, lateribus et apice rotundato, dorso antice subtiliter scabrato, postice dense punctato; elytris a medio postice oblique subimpressis, obsolete striato-punctatis, interstitiis latis creberrime punctatis. — Long. $5^1/_2$ mm., lat. $2^1/_4$ mm.

This species has the size and moreover almost the shape of *Xyleborus spathipennis* Eichh. [1]), but differs from all the *Xyleborus*-species hitherto known, by the shape of the thorax, as well as by the very dense punctuation of the base of the thorax and the elytra. The head is prolonged anteriorly into a short proboscis and so protrudes from under the thorax, in the same manner as in the Hylesini. The tibiae are less wide and much more coarsely denticulated along the outer edge than is the case in the other

1) *Berliner entomologische Zeitschrift.* Jahrg. 1868. S. 145.

Xyleborus-species. It might be presumed that the masticating apparatus, to examine which I have had no opportunity, shows certain peculiarities, which may some time justify a separation from the genus *Xyleborus*.

Two specimens were captured in October 1877 at Alahan pandjang, and brought home by the Sumatra-Expedition.

Mülhausen (Elsass), January 1880.

NOTE XXIV.

ON TWO NEW SPECIES OF GEODEPHAGOUS COLEOPTERA FROM SUMATRA.

BY

J. PUTZEYS.

---

1. *Therates Sumatrensis*, sp. n.

Closely allied to *Therates Wallacei* Thoms. [1]) and found in the same locality. It may perhaps prove to be only a variety of that species.

Thorax blue; elytra green with the whole base and the apex yellow, the sutural spines are even shorter, and the legs are entirely testaceous with the exception of the tarsi of the anterior pair and the apical joints of those of the middle and hind legs. — Length 12 mm.

A single male specimen, captured in October 1877 at Moeara Laboe, has been brought home by the recent scientific Sumatra-Expedition.

2. *Drypta dimidiata*, sp. n.

Testaceo pubescens, rufo; elytris, antennarum articulo primo apice femorumque apice nigris. — Long. 11 mm.

Allied to *Drypta lineola* Dej. [2]) but larger; the head more elongated; the thorax longer, more distinctly furrowed

---

1) J. Thomson, *Archives entomologiques.* Tome I. p. 131, n°. 5.

2) Dejean, *Species général des Coléoptères.* Tome I. p. 184, n°. 2.

and more depressed at the sides; the elytra much more elongated, entirely black, shading into dark blue, less rounded at the base, and less notched at the apex.

A single specimen was captured at Soeroelangoen in April 1878 by the recent scientific Sumatra-Expedition.

Brussels, January 1880.

NOTE XXV.

DESCRIPTIONS OF THREE NEW SPECIES OF COPROPHAGOUS LAMELLICORN COLEOPTERA FROM SUMATRA.

BY

Baron E. VON HAROLD.

---

1. *Onthophagus rugicollis*, sp. n.

Niger, flavo-setulosus, capite antice rotundato, medio carinula transversa, postice carina tridentata, thorace rugose punctato, medio baseos breviter sulcato, elytris interstitiis leviter convexis, asperato-punctatis, pedibus rufopiceis, tarsis obscure rufis. ♂. — Long. 6 mm.

Body of a somewhat elongated oval shape, depressed on the superior surface of the elytra, black, the thorax with a faint metallic hue; the surface sparingly covered with short yellowish hairs. The head rounded anteriorly, finely and rather densely punctuated, intermixed with a rather considerable number of large punctures; the middle of the head with a small transverse keel which is slightly arched; the posterior margin of the head tridentate, the median tooth a little shorter but broader at its base than the lateral ones. Thorax coarsely punctuated, the punctuation squamiform on the anterior portion, rugose on the posterior portion; the sides regularly rounded, deeply sinuated behind, the base very finely margined, with a rather deep but short longitudinal groove in the middle and distinctly

angular towards the scutellum. Elytra inconspicuously striated, the interstices depressed along the striae, which make the latter appear wider than they really are, and convex in the middle, with a slight rasplike punctuation placed in more or less regular longitudinal series. The pygidium densely and strongly punctuated, with long yellowish hairs. Under surface of the body pitchy; the anterior tibiae and the tarsi reddish brown, the antennae ferrugineous. (Male).

This new species should be placed close to *O. incisus* Har. [1]) and *orientalis* Har. [2]). It differs from them by its much smaller size, from *incisus* by the interstices of the elytra which are convex at the middle, from *orientalis* by the punctuation of the thorax which is much stronger and more rugose.

A single specimen, captured in October 1877 at Moeara Laboe, has been brought home by the recent Scientific Sumatra-Expedition.

2. *Onthophagus laevis*, sp. n.

Subdepressus, nitidus, niger, pedibus piceis, tarsis, palpis antennisque piceorufis, his clava rufotestacea, capite margine postico tuberculo acuto, thorace dorso antico medio breviter emarginato, postice sulco distincto, elytris sat profunde striatis, interstitiis convexis, laevibus. ♂. — Long. 9 mm.

Body of a somewhat elongated oval shape, slightly depressed on the superior surface; of a shining black color, smooth, the legs of a brownish black, the tarsi, the palpi and the antennae reddish, the club of the latter of a reddish yellow. Head regularly rounded anteriorly, with a very obsolete punctuation, and an arched keel across

1) *Annali del Museo Civico di Storia naturale di Genova.* Vol. X (1877) p. 52.

2) *Coleopterologische Hefte.* IV (1868) p. 83.

the middle; the hind margin of the head armed with a small toothlike tubercle in the middle The thorax rather densely punctuated, the punctures however rather shallow, slightly truncated anteriorly, with a slight triangular excavation just behind the small cephalic horn, the sides regularly rounded, the base not margined, carrying opposite to the scutellum a small although very distinct tooth, from which a longitudinal dorsal groove extends which disappears towards the middle. Elytra regularly oval, rather deeply striated, the striae groove-shaped, slightly indented dorsally, the interstices distinctly convex, smooth. Pygidium shining, rather densely punctuated. The metasternal plate smooth. The posterior metatarsus with a single obtuse tooth at its exterior border. The apical spur of the anterior tibiae not bent inward, obtusely rounded at the apex. (Male).

Only a single specimen of this new species, captured in November 1877 at Moeara Laboe, has been brought home by the Sumatra-Expedition. The species seems to be very well characterised by the small pointed tubercle placed in the middle of the hind margin of the head in the male sex, as well as by its smooth and shining black surface. I do not know any other species with which it might possibly be confounded.

3. *Liparochrus derasus*, sp. n.

Modice convexus, piceus, capite thoraceque dense fortiter punctatis, elytris striis fere 20 punctorum majorum, dorso autem medio post scutellum laevigatis, apice singulatim truncatis, angulo suturali ipso breviter denticulato. — Long. 8 mm.

Of a brownish black on the upper surface; the legs, the more or less transparent apex of the elytra and the under surface of the body of a reddish brown; the antennae ferrugineous. Head strongly punctuated, the clypeus of an obtusely rounded oval shape, the mandibles semicircular

exteriorly, considerably protruding over the labrum. Thorax with the anterior angles pointed, the posterior ones rounded, its surface very strongly and densely punctuated, with a slight longitudinal depression opposite to the scutellum. The latter is a narrow triangle. Elytra with more than twenty rows of rather large punctures, somewhat confused on the sides; before the middle and on both sides of the suture a shining space; the apex of the elytra notched, and with a small tooth at the suture. The undersurface of the body hardly pubescent. The anterior tibiae tridentate. The first joint of the club of the antennae embracing the following.

It is a very peculiar species, which shows considerable affinity to the *Hybosorus* and the *Phaeochrous*, but as I have observed only five abdominal segments it will have to be placed among the *Liparochrus*, which it moreover resembles by the strongly rounded posterior angles of the thorax.

Two specimens, captured in June 1877 at Simawoeng, have been brought home by the Sumatra-Expedition.

Berlin, March 1880.

NOTE XXVI.

ON HELIOCOPRIS STURLERI, HAROLD [1]).

BY

Baron E. VON HAROLD.

I believe not to be mistaken in referring to this species a female specimen of a large *Heliocopris* having the elytra of an opaque black with a silky gloss, very inconspicuously striated and covered all over by an extremely delicate rugosity. The head is semicircular, with the anterior margin faintly undulated; the vertex flat, granulated, limited anteriorly by a stout transverse keel, faintly tridentate; in front of this keel the profile of the head is gradually inclined towards the exterior border, and is covered all over by a transverse rugosity, in the interstices of which a fine but very distinct punctuation may be observed. The pronotum is granulated all over; the elevated dorsal portion is limited anteriorly by a faintly arched ridge; inferiorly, along the marginal edge of the sides runs a crest which is provided with long rufous hairs. The pygidium and the lateral margins of the elytra, exteriorly of their lateral crest, are smooth and shining.

The above described specimen, captured in May 1877 at Loeboekh Tarab (Sumatra), has a length of 60 mm. The Berlin Museum possesses another specimen, also a female, measuring 66 mm., entirely identical with the one that was brought home by the Sumatra-Expedition.

Berlin, March 1880.

1) *Coleopterologische Hefte.* XVI (1879) p. 225, ♂.

NOTE XXVII.

ON ATAENIUS MONSTROSUS, HAROLD.

BY

Baron E. VON HAROLD.

Synonym: *Aulonocnemis monstrosa*, Harold. *Annali del Museo civico di Storia naturale di Genova.* vol. X (1877) p. 92.

I was insufficiently acquainted with the genus *Aulonocnemis* when I referred to it the above mentioned species. In the following "Note" I will mention the characteristics by which this genus of Klug is shown to be a true representative of the Copridae. Only provisionnally I retain the *monstrosus* among the *Ataenius*. The species indeed possesses the more essential characteristics of this genus, but the very peculiar armature of the anterior tibiae, as well as the shortness of the posterior tarsi seem to require a new generic subdivision.

The species is found in Borneo (Sarawak) by the Marquis Doria (Museum Genoa), and in the same island by Dr. Salomon Müller (Leyden Museum).

Berlin, March 1880.

NOTE XXVIII.

XYNOPHRON, A NEW GENUS OF THE SCATONOMIDAE (COPROPHAGOUS LAMELLICORN COLEOPTERA)

BY

Baron E. VON HAROLD.

Xynophron, g. n.

Corpus anguste ovale, sat convexum. Oculi plani, minuti. Clypeus medio emarginatus et utrinque breviter bidentatus. Thorax foveolis lateralibus fere obsoletis. Elytra humeris acutis. Pygidium inflexum, sulco transverso basali. Prosternum postice valde dilatatum, planum. Coxae anticae breves, transversae. Mesosternum magnum, sutura fere recta a metasterno divisum. Tibiae anticae apice recte truncatae, extus breviter tridentatae, dentibus duobus inferioribus approximatis. Tibiae posticae extus leviter serratae, tarsis brevibus, metatarso articulo sequenti fere breviore. Calcaria apicalia tibiarum posticarum brevia, 2 ad intermedias, ad posticas unum.

An extremely ambiguous genus, about the exact position of which I retain certain doubts, not having been able to examine the mandicating organs in the unique type specimen.

At first sight one might feel inclined to place the insect

among the Choeridiidae, but the shortness of the apical spur of the posterior tibiae as well as that of the tarsi, the first joint of which has hardly the length of the next, do not allow this. The posterior tibiae are dilated towards the apex and have a very elongated triangular shape. This characteristic suffices to place it among the Copridae and excludes any closer relation with the Ateuchidae, although the head and the posterior tarsi, very similar, for instance, to those of *Canthon*, seem to furnish arguments in favour of this view. The presence of a single spur at the posterior tibiae and the considerable distance between the intermediate coxae place the insect among the true Copridae, excluding it from the Aphodidae. The completely transverse and deep position of the anterior coxae place it without contest amongst the Scatonomidae. But it has a position quite by itself in this group, because of the extreme shortness of the apical spur of the posterior tibiae.

Taking everything into consideration it seems to be close to *Pedaria* that this new genus will have to be placed. With this it has in common: the dimensions of the sternal parts, especially the width of the metasternum, the configuration of the anterior coxae, the coalescens of the abdominal segments in the median axis, and finally the shortness of the posterior metatarsus, which in certain *Pedaria* as f. i. *nigra*, does not surpass the next joint in length. The essential difference always remains the fact that in *Pedaria* the apical spur of the posterior tibiae is strongly developed.

Close to the present genus the genus *Aulonocnemis* Klug must be placed. This is another generic subdivision of which the exact place in the system has remained doubtful to the present day. The examination of Klug's type specimens in the Berlin Museum has convinced me that the genus is in no way related to the Aphodidae, having only a single apical spur at the posterior tibiae, whereas the intermediate coxae widely separated, assign to it its natural

position among the true Copridae, in which group it again approaches the *Pedaria* by its quite similar transverse coxae. On the other hand it diverges from this genus by the very short apical spur of the posterior tibiae, by which it closely approaches the *Xynophron*, from which it is again distinguished by the more elongated and narrower shape of the body, by the less compressed and consequently less broad posterior tibiae, by the abdominal sutures not having disappeared in the median line, and finely by the thorax which is always rather considerably inflated.

The new genus again enlarges the group of those curious small Copridae from the East Indies, as *Disphysema*, *Paraphytus*, *Cassolus*, *Anoctus*, *Cyobius* and *Parachorius*, which all appear to be limited to a single species.

Xynophron Ritsemae sp. n.

Subelongato-ovalis, sat convexus, nitidus, nigropiceus, thorace dense, disco subtilius punctato, elytris striatis, striis crenato-punctatis, apice multo profundioribus, interstitiis laevibus, planis, apice convexis, tibiis tarsisque obscure rufopiceis. — Long. 5 mm.

Hab. Sumatra (Dr. Salomon Müller).

Body of a somewhat elongated oval shape, rather convex superiorly, of a shining black, the tibiae and tarsi of a deep brown color. Head rather densely punctuated, with a slight longitudinal impression along the middle; the anterior border of the clypeus rather deeply sinuated in the middle, two minute teeth at both ends of this sinuosity. Thorax transverse, slightly convex, densely punctuated, the punctures much smaller on the middle, the sides very slightly arched, the anterior angles rounded; the base without a marginal edge. Elytra regularly ovate, their posterior half rather convex, the humeral angle not protruding but pointed; slightly striated, the striae widened and furrowed towards the apex, provided with small in-

dented punctures, which encroach upon the borders of the interstices, the latter smooth and flat but convex in their apical portion; the eighth and ninth stria much shortened anteriorly, the ninth confluent with the lateral margin a little beyond the middle. Epipleurae very distinct as far as the middle, excavated longitudinally. Pygidium continuous with the surface of the abdomen, with a deep transverse furrow at the base and two arched furrows meeting a little before the apex in a median angle directed towards the centre. The undersurface of the thorax and the sides of the abdomen strongly punctulated. The posterior femora inconsiderably widened, with the anterior and posterior border margined.

I have dedicated this curious species to the learned entomologist, by whose intervention I have become acquainted with it.

Berlin, March 1880.

NOTE XXIX.

DESCRIPTION OF A NEW GENUS AND SPECIES OF ECELONERIDES (FAMILY ANTHRIBIDAE) FROM SUMATRA.

BY

W. ROELOFS.

Rawasia, g. n.

Head as long as broad. Rostrum somewhat longer than and continuous with it, slightly narrowed anteriorly as far as the insertion of the antennae, where it suddenly enlarges; its front margin slightly notched. Scrobes large and deep, triangular in the male, less wide, transverse and elongated posteriorly in the female. Antennae of the male reaching as far as the middle of the body; those of the female shorter; the first joint elongate ovate, the second of the same length, clubshaped at the apex. The third, fifth and sixth similarly shaped and somewhat longer than the second, the fourth again of the same shape but longer still, the seventh of an elongate triangular form. The club, of an oblong oval shape, consists of four joints, which, together with the seventh joint, are furnished in the male with rather long hairs at the under surface.

Prothorax about as long as broad, its antibasilar keel terminating on the sides before the middle. Scutellum small, triangular. Elytra somewhat broader than the prothorax, moderately convex and elongated. Pygidium transverse, rounded.

Legs moderate; tibiae somewhat compressed and gradually enlarged towards the apex; tarsi with the first joint triangular; the second of a distinctly transverse triangular shape, bisinuated at the apex; the third of a structure which is unusual in the family, being entirely visible, very large, rounded and bilobed; the fourth joint elongated, its internal claws long and parallel with the outer tooth.

A most remarkable genus, by the development of the third joint of the tarsi, quite unusual in the Anthribidae, this joint being hidden in the greater majority of the species. In the genus *Lagopezus* Schönh. it is free, but in no way of so considerable dimensions as in the present genus. In the genus *Eucorynus* Schönh., close to which the new genus will have to be placed, the third joint is partially free but rather small.

Rawasia Ritsemae, sp. n.

Elongatus, fuliginosus; interstitiis alternis elytrorum pilis luteis maculatis; prothorace dense punctato; antennis nigris, albo pilosis, clava nigra. — Long. 14 mm.

Elongated; of a smoky-black, moderately shining; furnished with greyish yellow hairs superiorly and on the legs, with whitish ones inferiorly. The sides of the rostrum rugose and scarcely pubescent, its anterior surface covered with a punctuation which is longitudinally confluent, and covered with long yellow hairs similarly to the forehead. The bottom of the scrobes and a space behind the eyes are naked and shining. The antennae black, furnished with greyish hairs, more thickly set on the seventh joint. The club black, rugose, in the male furnished with black hairs inferiorly [1]).

Prothorax slightly rounded at the sides, inconspicuously

1) The seventh joint, seen from below, seems to belong to the club in the male; it is black, rugose, and similarly covered with long black hairs as this is.

narrowed anteriorly, nearly straight at the base, the keel before the base being directed forward under an obtuse angle and not reaching the middle of the prothorax on the sides. The prothorax is closely punctuated, provided with an obsolete median line, and covered by a diffuse pubescence which forms indistinct patches.

Elytra sparingly furnished with yellow hairs, somewhat broader than the prothorax and about twice as long, nearly straight, with a slightly upturned basal margin, rounded at the apex and provided with punctuated shallow striae; the interstices between the alternate striae (commencing with the interstice between the 2nd and 3rd striae) are decorated with yellow and black spots, alternately, A rather inconspicuous yellow transverse band is to be seen towards the posterior third of the elytra.

Under surface furnished with a dense greyish pubescence; the abdomen smooth, the prosternum and metasternum with distant punctures. Legs similarly pubescent as the under surface of the body; the hairs of the second joint of the tarsi elongated at its angles, and somewhat embracing the third joint; at the apex of the tibiae a blackish ring, which is interrupted inferiorly by yellow hairs. The under surface of the first tarsal joint also is covered with yellow hairs, that of the second tarsal joint is densely covered with a brownish-yellow pubescence; the third joint is provided with lamellae of the same colour, more or less overlapping its margin.

The collection formed during the recent Sumatra-Expedition contains two specimens (a ♂ and a ♀) of this interesting insect, which I dedicate to my friend Mr. C. Ritsema, the learned conservator of the Entomological Collections of the Leyden Museum. The male specimen is captured in May or June 1878 in the Highlands of Palembang, the female in the same month in the district of Rawas.

Brussels, January 1880.

NOTE XXX.

DESCRIPTION OF A NEW SUMATRAN SPECIES OF THE GENUS MYLLOCERUS.

BY

W. ROELOFS.

Myllocerus scapularis, sp. n.

Niger; prothoracis lineis tribus, elytrorum linea suturali maculisque irregularibus squamulis viridibus ornatus. Scapo valido compresso, dilatato bicurvato. Femoribus dente parvulo armatis. — Long. 5 mm.

Black, the legs of an obscure brown-red colour; furnished with green scales and greyish hairs. Rostrum bare of scales at the apex which is bordered with greyish hairs, concave like the forehead and carrying an impressed median line. Scape of the antennae exceeding the anterior border of the prothorax, robust, enlarged and flattened, curved outward and downward [1]), striped longitudinally and provided with short and stiff hairs. The funicle covered with green scales and as well as the club provided with greyish hairs. Eyes distant from each other superiorly.

Prothorax somewhat transverse, deeply bisinuated at the base, with the anterior narrowed portion straight-sided, coarsely punctuated, with an impression at the base of the

1) The stronger curve is in the middle of the scape, which when seen sideways, shows the concavity superiorly. Towards the apex it is slightly bent in the inverse direction.

disk and another transverse one laterally towards the anterior portion. The prothorax is provided with green scales which form three longitudinal lines on the upper surface and cover the sides. Scutellum punctiform.

Elytra oval, the shoulders inconsiderably prominent and oblique, the apex narrowly truncated, provided with punctuated striae, the interstices flat and rugose. The elytra have similar scales as the prothorax, forming confuse marmorated patches, more dense along the suture. Each interstice bears a row of greyish hairs, inclined backward. Femora notched towards the apex and armed with a small tooth, that of the anterior ones being somewhat larger.

Under surface punctuated in a vague manner, provided with green scales and whitish hairs like the legs.

Several specimens from different localities (from the district of Rawas in May, from Koetoer in June, from Misauw in July and from Soeroelangoen and Kloempang in August 1878) have been brought home by the Scientific Sumatra-Expedition.

Brussels, January 1880.

NOTE XXXI.

THE NEW DYTISCIDAE AND GYRINIDAE COLLECTED DURING THE RECENT SCIENTIFIC SUMATRA-EXPEDITION,

DESCRIBED BY

Dr. M. RÉGIMBART.

DYTISCIDAE.

1. *Laccophilus Ritsemae*, sp. n.

Oblongo-ovalis, postice paululum attenuatus, subtilissime reticulatus, infra fusco-ferrugineus, antennis pedibusque testaceo-ferrugineis; capite ac prothorace fulvis, hoc ad basin leviter infuscato; elytris nigro-fuscis, crebre et irregulariter fulvo-irroratis, ad basin fascia lutea transversa et undulata, post medium aliquot lineolis transversim dispositis ornatis, ad apicem et latera anguste fulvis. — Long. $3^1/_2$ mm.

Closely allied to *Laccophilus transversalis* Régimb. [1]) from which it differs by the fulvous head and prothorax; the latter has no black spot on the anterior border, and on the middle of the posterior border only a faint, light-brownish band.

A single specimen, captured in November 1877 at Moeara Laboe.

---

1) *Annales de la Société entomologique de France.* 5me sér. tom. VII (1877) p. 357, n° 5.

2. *Hydaticus litigiosus*, sp. n.

Ovatus, convexiusculus; subtus nigro-ferrugineus, abdomine ad latera fulvo-notato; antennis et pedibus fulvis, posticis nigro-fuscis. Capite fulvo, in vertice et circa oculos nigro; prothorace fulvo, antice et postice in medio anguste nigro; elytris nigro-fuscis, ad latera vitta marginali plus minus lineolis nigris divisa, ad basin vitta transversa angusta extrorsum hamato-reflexa, paulo ultra medium altera vitta transversa lata et oblique arcuata, fere ad apicem macula sublaterali, fulvo ornatis. — Long. 13—15 mm.

The transverse band of the base of the elytra sometimes sends out short prolongations directed backward and forward; the post median band broad, irregular, more or less subdivided by longitudinal black lines and points, bent inward, not quite reaching the suture, sending out from its hind border several linear prolongations, many of which reach the subapical spot, the latter as well as the two transverse bands broadly connected with the lateral band, which is divided into several irregular stripes by black lines and points.

This insect differs from *Hydaticus bihamatus* Aubé, of which it has the shape and the size, by the not sharply defined bands of the elytra, and by the shape of the second band, which is transverse and not arched in the last named species; from *Goryi* Aubé it differs by the much shorter size, by the head not being spotted on the forehead, and by the second band of the elytra being much less oblique.

A single specimen from Mocara Laboe, captured in November 1877. — I possess a specimen of this species from Java, whilst Mr Raffray has brought home a third specimen from that island.

3. *Copelatus tenebrosus*, sp. n.

Elongato-ovalis, depressiusculus; infra nigro-ferrugineus,

pedibus, antennis et clypeo fusco-ferrugineis; supra niger, ad prothoracis elytrorumque latera anguste et confuse ferrugineus, subtilissime reticulatus et tenuiter punctulatus; elytris striis sex (quarum interna antice et externa postice abbreviata) notatis. — Long. $4^1/_2$—$4^3/_4$ mm.

Color entirely black with a ferrugineous shade, more or less distinct at the under surface and at the sides of the prothorax and elytra. Antennae, legs and clypeus of a ferrugineous brown colour. The immature specimens have the legs and the under surface of the body much paler and the anterior surface of the head ferrugineous.

Specimens from Solok (April 1877), from the district of Rawas (May 1878) and from Soeroelangoen (August 1878).

4. *Hyphydrus Sumatrae*, sp. n.

Ovatus, brevis, crassus, sat convexus; infra valde punctatus, fusco-ferrugineus, antennis pedibusque furrugineis. Capite rufo-ferrugineo, crebre et sat regulariter punctato, intra oculos utrinque depresso et paululum infuscato; prothorace fusco-ferrugineo, in medio late et confuse obscurato, crebris et inaequalibus punctis (majoribus ante basin) impresso; elytris inaequalibus et fortioribus punctis striaque sat profunda impressis, rufo-ferrugineis, cum sutura, puncto humerali, fascia media transversa lata et undulata alteraque post medium macula angulata fasciae plus minus juncta, nigricantibus. — Long. $3^3/_4$ mm.

Coloration of the elytra rather diffused: the median band irregular, rather broad, undulated, sending out two short prolongations backward and forward; the post-median spot $\wedge$-shaped, its inner side being connected with and at the same time the continuation of the internal posterior prolongation of the median band. Suture rather

narrowly black before and behind the median band. Punctuation of the elytra strong and irregular, consisting of unequal punctures. Punctuation of the under surface of the body coarse and regular.

Captured in April 1877 at Solok.

5. *Hydrovatus atricolor*, sp. n.

Oblongo-ovatus, brevis, crassus, postice attenuatus, ad apicem breviter et anguste acuminatus, convexus; infra nigro-ferrugineus, punctatus, pedibus antennisque ferrugineis; supra tenuissime reticulatus. Capite fusco-ferrugineo, leviter punctulato, plano, post clypeum utrinque foveolato; prothorace nigro-ferrugineo, in medio late et confusissime obscurato, fortiter punctato; elytris nigris, late et confuse ad laterae ferrugineis, post humeros maximum latitudinem praebentibus, ad apicem breviter et anguste acuminatis, levius punctatis et duabus striis, quarum externa vix visibili, notatis. — Long. $3^1/_4$ mm.

Color ferrugineous black, lighter on the head and on the sides of the elytra and prothorax; the upper surface of the body covered all over by a very fine and very regular reticulation; the punctuation is very fine on the head, very strong on the prothorax, and intermediate on the elytra, of which only the internal stria is distinctly visible, the external one being quite obsolete and not continuous; foveolae of the head small and well defined.

Captured in April 1877 at Solok.

6. *Hydrovatus consanguineus*, sp. n.

Ovatus, convexus, sat brevis, postice late et breviter acuminatus; infra rufo-ferrugineus, valde punctatus, supra tenuissime reticulatus et haud crebre punctatus, capite im-

punctato, rufo-ferrugineus, elytris vix obscurioribus, sat regulariter ovatis. — Long. $2^1/_3$ mm.

Of a rather regular oval shape, the upper surface very finely reticulated all over; the punctuation of the prothorax and elytra distinct and rather spread; the head not punctuated. Colour uniform ferrugineous red, somewhat darker on the elytra.

Closely allied to *Hydrovatus clypealis* Sharp [1]) from which it principally differs by the rounded clypeus, the less shorter shape and the somewhat smaller size.

Captured in March 1877 at Boekit Kandang.

7. *Hydrocanthus Ritsemae*, sp. n.

Elongato-ovalis, convexiusculus, postice valde attenuatus, omnino rufus, leavis; elytris post medium aliquot punctis raris et obsoletis vix notatis. — Long. $2^3/_4$ mm.

Red all over, smooth, the apical half of the elytra with some distant and inconspicuous punctures.

Captured in December 1877 at Loebockh Gadang.

GYRINIDAE.

1. *Dineutes fulgidus*, sp. n.

Ovatus, latus, antice paulo magis quam postice attenuatus, utrinque valde depressus; infra piceo-ferrugineus, pedibus rufis, femoribus ferrugineis; supra nitidissimus, subtilissime reticulatus, ad latera late sericeus. Capite et prothorace coeruleo-aeneis; elytris in medio aeneo-micantibus, latissime ad latera sericeo-coerulescentibus, striarum vestigia aliquando praebentibus, extus ad apicem obsoletissime emarginatis. — Long. 17—19 mm.

---

1) *Petites Nouvelles Entomologiques*. vol II. p. 61 (1876).

This magnificent species, which is closely allied to *Dineutes politus* Mc Leay, differs from it by its somewhat smaller size, by its broader and less elongated shape, and by the shorter prothorax. It occurs also in China where the specimens have a somewhat different coloration, showing a slightly oblique band of an opaque coppery hue on the external half of the elytra.

Captured in October 1877 at Alahan Pandjang.

2. *Orectochilus spiniger*, sp. n.

Elongato-ovatus, antice ac postice attenuatus, valde convexus; infra nigro-piceus, abdomine pedibusque ferrugineis; supra nitidissimus, laevis, nigro-aeneus, angustissime testaceo limbatus; prothorace utrinque vitta lata submarginali valde punctata, tomentosa, antice latiore quam postice; elytris vitta simili angustissima et ad tertiam partem usque ad extremam suturam triangulariter dilatata ornatis, ad apicem truncatis cum angulo interno recto, externo spinam valde acutam formante. — Long. $7^1/_2$—8 mm.

Upper surface of the body of a beautiful and very glossy coppery black, entirely smooth, with the exception only of the margins of head, thorax and elytra, where, internally of the very narrow yellow margin, a submarginal strongly punctuated band is present, which is covered by a very short greyish yellow down; on the thorax this rather broad band widens a little, anteriorly, and continues as a narrow stripe along the anterior margin; on the elytra it is very narrow and hardly visible as far as the posterior third, where it dilates obliquely and in this direction reaches the extremity of the suture, forming in this manner a triangle the top of which is formed by the very prominent and strongly spined outer angle of the truncation.

Captured in August 1878 at Soeroelangoen and at Kloempang.

3. *Orectochilus subsulcatus*, sp. n.

Elongato-ovalis, antice ac postice attenuatus, valde convexus; infra niger, ultimis abdominis segmentis labro pedibusque rufo-ferrugineis; supra niger, vix aenescens, laevis, angustissime testaceo-limbatus; prothorace vitta submarginali antice latiore quam postice, punctata, tomentosa; elytris vitta simili sat lata, paulo post humeros usque ad extremam suturam triangulariter dilatata ornatis, vestigia quinque sulcorum obsoleta praebentibus, ad apicem fere recte truncatis, angulo interno recto, externo obtusiusculo et minime spinoso. — Long. 6—6½ mm.

Differs from *Orectochilus marginipennis* Aubé by the somewhat smaller size, the more elongated shape, and principally by the traces of five longitudinal very inconspicuous furrows on the elytra.

Captured in October 1877 at Alahan Pandjang and in April 1877 near the cave of Boea.

4. *Orectochilus scalaris*, sp. n.

Elongato-ovatus, antice ac postice attenuatus, valde convexus; infra testaceo-ferrugineus; supra laevis, fusco-aenescens, cum labro, ultimo abdominis segmento atque angustissimo elytrorum margine rufis; prothorace vitta marginali antice dilatata, punctata et griseo-tomentosa, elytris vitta simili sat angusta post medium bis dilatata et suturam ante apicem attingente ornatis, ad apicem fere recte truncatis, angulis minime obsoletis, interno recto, externo obtusiusculo. — Long. 5—5½ mm.

The two specimens which I have before me have all over a ferrugineous shade which may perhaps be ascribed to the fact of their being still immature. The most remarkable characteristic of this species is the shape of the felting margin of the elytra: this margin, rather narrow in the first half, suddenly widens into a right angle for the first time a little behind the middle and a second

time at about five sixths of the length as far as the suture, from which it is only separated by a small interval which is hardly conspicuous.

Captured in August 1878 at Kloempang.

I possess another analogous species which is however different and inhabits the Andaman-Islands.

Evreux (Eure), June 1880.

NOTE XXXII.

DESCRIPTION OF A NEW SPECIES OF THE LUCANOID GENUS FIGULUS.

BY

C. RITSEMA Cz.

In a small but very interesting collection of Coleoptera from the island of Sumbawa recently presented to the Leyden Museum by his Excellence, the Governor General of Dutch India J. W. van Lansberge, I found two specimens of a new species of the above mentioned genus. It occupies a position quite by itself in the genus, the pronotum being entirely smooth without a central fovea, and the elytra being irregularly punctate-striate. It has the first mentioned characteristic in common with *F. integricollis* Thoms. of the Marianne Islands, the second with *F. sublaevis* Palis. (=*nigritus* Westw.) of West-Africa and with *F. anthracinus* Klug of Madagascar.

I propose to name this new and interesting species

Figulus Lansbergei.

Length (without mandibles) 13,5—15mm.; breadth at the shoulders 5—6 mm. — Elongate, parallel, rather broad and slightly convex. Deep black, with a strong gloss. The head diffusedly covered with fine punctures; its ante-

rior half concave, with an inconspicuous tubercle in the middle, and a more distinct one almost in front of each eye; the front margin very slightly emarginate, nearly straight. The vertex provided with a transverse elevation notched at the top and thus forming two distinct tubercles, directed slightly forward, of which the right one is more developed than the left; behind this elevation a very conspicuous transverse impression may be observed. The ocular canthus slightly and obliquely emarginate in front of the eyes, nearly parallel and with thickened margin laterally, terminating posteriorly in an obtuse angle and irregularly covered with large punctures. The mandibles are curved and acuminate, on their upper surface provided with a longitudinal furrow and on their inner side armed with a strong central tooth preceded by a much smaller one.

Prothorax broader than the head, rather broader than long, very smooth and glossy, non-foveate, and overspread with almost imperceptible punctures; the sides are parallel, the angles rounded, the anterior ones rather prominent, somewhat flattened, with thickened margin; the base and the sides narrow-edged, the front margin without the slightest trace of a median tubercle. Scutellum impunctate, of a verry narrow triangular shape.

The elytra are very glossy, somewhat narrower than the prothorax, and somewhat longer than twice its length, with slightly pointed shoulders. The striae along the suture only are deep and well defined, and very inconspicuously crenulated; the second and third striae only consist in a row of almost imperceptible punctures, which are more distinct near the base of the elytra; the punctures of the fourth stria are distinct although small, those of the fifth larger, and those of the sixth stria the largest of all, and placed in an indistinct longitudinal furrow. Between the sixth stria and the marginal furrow, which is irregularly provided with large punctures, three longitudinal rows of more or less inconspicuous punctures may

be observed. The interstices are flat and impunctate. The shoulders as well as the edge of the broadly rounded posterior angles of the prothorax are very minutely crenulated.

Under surface of the body glossy, the prosternum in front of the coxae and the metasternum at the sides with irregular punctures, the abdomen nearly impunctate, the apical segment with two lateral, oblique, indistinct impressions.

Captured at the island Sumbawa by Mr Colffs.

Leyden Museum, July 1880.

NOTE XXXIII.

DESCRIPTION OF THREE NEW EXOTIC SPECIES OF THE HYMENOPTEROUS GENUS XYLOCOPA.

BY

C. RITSEMA Cz.

---

1. *Xylocopa tuberculiceps*, sp. n. ♀.

Allied to *Xylocopa tarsata* Smith, but larger.

Length 23 mm.; alar expanse 44 mm. — Black, with black pubescence, except a spot of ferrugineous hairs on the outer margin of the posterior metatarsus.

The head densely punctured, and densely covered with black pubescence on the face which is armed with four glossy tubercles: one between the antennae, another on the middle of the front margin of the clypeus, opposite to the median tubercle of the labrum, and two on the middle of the lateral margins of the clypeus.

The thorax punctured and covered with black pubescence, except the middle of the disk which is impunctate and naked. The hindborder of the scutellum rounded, not sharply edged. The wings dark fuscous, darker behind the enclosed cells, with shades of purple, blue and green. The pubescence of the legs black, with exception of a spot of ferrugineous hairs on the outer margin of the posterior metatarsus, and another smaller one of the same color on the apex of the under surface of the posterior tibiae. The small spot on the apex of the tibiae is however sometimes wanting.

The abdomen covered with large punctures, each puncture bearing a black hair; the sides of the abdomen very densely punctured and fringed with black hairs.

Three female specimens from the Cape of Good Hope (Horstock).

2. *Xylocopa assimilis*, sp. n. ♀.

Much resembling the South-American *Xylocopa Augusti* Lepel. but at once to be distinguished from that species by the sharply edged hind border of the scutellum, which is rounded in the American species.

Length 34 mm.; alar expanse 62 mm. — Black, with the apical margin of the ventral segments of the abdomen ferrugineous. The pubescence black, with exception of that on the second and following segments of the abdomen, which is ferrugineous.

The head glossy, not densely covered with irregular punctures; its pubescence black; the clypeus with a faint longitudinal impression on the middle, and a more distinct one on each lateral margin; the front margin of the clypeus impressed; the furrowed keel between the antennae much raised; behind each posterior ocellus a deep impression.

The thorax anteriorly and laterally densely covered with black pubescence; the middle of the disk naked, shining and covered with some large punctures. The hind border of the scutellum sharply edged, and slightly curved upwards. The legs densely covered with black pubescence. The wings dark brown with a bright green and purple iridescence.

The upper surface of the abdomen closely punctured on the third and following segments; more sparingly punctured on the first and second segment, especially on the first; the apical margin of the segments impunctate, and a smooth and shining longitudinal line on the middle of the third, fourth and fifth segments. The pubescence of

the first segment black, that of the following ones bright ferrugineous. On the first and second segments this pubescence consists of a lateral fringe only, the third and fourth segments have moreover some short ferrugineous hairs on the disk and along the apical margin, the fifth segment a dense fringe of long ferrugineous hairs on the apical margin, whilst the sixth segment is covered all over with ferrugineous hairs. — The ventral segments closely punctured, with a smooth and shining longitudinal line on the middle; the apical margins ferrugineous, fringed with ferrugineous hairs.

The described female specimen has been captured at the island Sumbawa by Mr. Colffs, and presented to the Leyden Museum Collections by his Excellence J. W. van Lansberge.

3. *Xylocopa incompleta*, sp. n. ♀ and ♂.

Length about 27 mm.; alar expanse 52 mm.

Female: black, with black pubescence, except that on the head, thorax and outer margin of the anterior tibiae, which is fulvous-red.

The head densely covered with fulvous-red plumose pubescence, much paler on the clypeus and on the lower part of the cheeks; on the face the pubescence is intermixed with some black plumose hairs. The under surface of the flagellum of the antennae ferrugineous.

The upper surface of the thorax as well as the sides densely covered with fulvous-red plumose pubescence. The hind border of the scutellum sharply edged. The legs covered with black pubescence, except the outer margin of the anterior tibiae, on which the pubescence is fulvous-red. The wings dark brown with purple and green iridescence, and only two submarginal cells.

The abdomen densely punctured; the first segment thinly covered with black plumose hairs; the dense lateral fringe also consists of black plumose pubescence.

Male: black, the upper surface of the abdomen opaque dark bronzy green; the pubescence on the head, mesothorax and scutellum, first abdominal segment and legs whitish or pale ferrugineous, that on the prothorax and second and following segments of the abdomen black.

The head small, the eyes rather large, not approximating on the vertex; the pubescence dense, plumose, whitish, intermixed with black hairs near the ocelli. The under surface of the flagellum of the antennae ferrugineous.

The anterior portion of the thorax as well as the tegulae densely covered with black plumose pubescence; the remaining portion of the upper surface of the thorax as well as a patch below the wings densely covered with whitish plumose pubescence. The hind border of the scutellum sharply edged. The wings subhyaline with faint shades of purple, and with only two submarginal cells. The tarsi of the legs, especially those of the intermediate pair elongated. The anterior tibiae and tarsi fringed outside with whitish hairs; the intermediate tibiae covered on the upper surface with whitish pubescence and fringed outside with long pale ferrugineous hairs; the intermediate tarsi fringed with long pale ferrugineous hairs on both sides; the posterior tibiae with a longitudinal streak of whitish pubescence on the upper surface, laterally with long brown-black hairs; the posterior tarsi on the upper surface with long whitish hairs and some black ones along the outer margin. The posterior tibiae are prolonged at the apex of the under surface into a long and stout spine.

The upper surface of the abdomen is very densely punctured, opaque and of a dark bronzy green color. Its pubescence is plumose, whitish on the first, black on the second and following segments, although in certain lights it seems to be greyish on the fourth, fifth, sixth and seventh. The apical segment is widely truncated at the apex; its apical margin deeply incised at the middle. The ventral segments are sparingly punctured, subshining and almost without pubescence, with exception however of the

apical segment which bears black hairs and a short ferrugineous fringe on its apical margin. The apical margin of the ventral segments is slightly toothed at the middle, that of the apical segment however armed with a sharp and distinct tooth.

One female from Java (S. Müller) and a male and female from West-Sumatra (J. W. van Lansberge).

Obs. The couple from Sumatra is not quite mature; moreover it has at one time been preserved in spirits, two causes to which the paler colors may perhaps be owing.

Leyden Museum, August 1880.

NOTE XXXIV.

ON TWO NEW EXOTIC SPECIES OF FOSSORIAL HYMENOPTERA.

BY

C. RITSEMA Cz.

---

1. *Psen Sumatranus*, sp. n. ♀.

Length 10 mm.; alar expanse 15 mm. — The head black, shining and impunctate, thinly covered with whitish hairs, more densely covered with silvery hairs on the clypeus; a sharp carina between the antennae; the scape of the antennae, the palpi and the mandibles yellowish, the latter with brown tips; the flagellum of the antennae black above, pale ferrugineous beneath.

The thorax black, covered with rather long erect whitish hairs; the mesothorax shining and nearly impunctate; the metathorax clathrate-rugose, with a deep longitudinal furrow across the middle, and at both sides of this furrow, a little behind the postscutellum, a very glossy and impunctate space. The tegulae pale ferrugineous, and a small spot before the base of the wings pale yellow. The wings hyaline and beautifully iridescent, the stigma and nervures dark brown. The second submarginal cell does not receive the first recurrent nervure, this nervure joining the cubital one a little before the apex of the first submarginal cell. The legs thinly covered with erect hairs; the anterior and intermediate pair pale yellow, with exception of the coxae

and femora which are dark brown; the posterior legs dark brown, with the trochanters and the base of the tibiae as well as the apical spines pale yellow.

The abdomen shining, nearly impunctate and slightly pubescent; red, with the base of the first segment pale yellow, the middle pitchy; the extreme apex of the last ventral segment dark brown. The first segment is swollen at the apex, curved downwards and about as long as the following segments together.

A single female from West-Sumatra (van Lansberge).

2. *Chalybion curvatum*, sp. n. ♂ and ♀.

Most nearly allied to *Chalybion Bengalense* Dahlb., but at once to be distinguished from that species by the petiole of the abdomen which is strongly curved upwards.

Length 16—18 mm.; alar expanse 25—29 mm. — The whole insect, except the opaque black flagellum of the antennae, of a dark blue color with a purplish hue in certain lights, especially on the metathorax and abdomen. The head, thorax, petiole of the abdomen, coxae and under surface of the trochanters and femora covered with erect long whitish hairs; no spot of dense silvery pubescence on the apex of the metathorax above the coxae of the posterior legs.

The face densely punctured; the vertex and cheeks sparingly punctured and therefore shining; the pronotum, scutellum and postscutellum rather sparingly, the mesonotum more densely punctured; the disk of the metathorax finely, the inclined portion more coarsely transverse-rugose, intermixed with punctures. The sides of the thorax irregularly covered with deep punctures. The tegulae smooth and shining, impunctate; the wings fuscous, less dark towards the base, with a purple iridescence. The petiole of the abdomen strongly curved upwards.

Two males and two females from Japan (von Siebold).

Leyden Museum, August 1880.

NOTE XXXV.

DESCRIPTION OF TWO NEW SPECIES OF THE RHYNCHOPHOROUS GENUS APODERUS.

BY

W. ROELOFS.

---

1. *Apoderus cruentatus*, sp. n.

Synonym: *Strigapoderus cruentatus*, Jekel in litt.

Capite, prothorace, scutello tuberculisque baseos elytrorum brunneo-rufis nitidis. Antennis nigris, basi rufis. Prothoracis lateribus elytrisque nigris, his striis profundis grosse punctatis. Subtus pedibusque testaceis, femorum apice tibiis tarsisque brunneis. — Long. 6 mm. rostr. excl.

Of the same size and shape as *Apoderus melanopterus* Wiedem. — Head of a deep brownish red color, smooth and glossy, provided with a short impressed line between the eyes; rostrum with a gibbosity between the antennae; this gibbosity divided by a median impression. The antennae with the two first joints red, the following of a blackish brown; their club black, velvety.

Color of the prothorax similar to that of the head, and extending on the scutellum and on the median portion of the base of the elytra; its sides are more or less washed with black. The prothorax is smooth, narrowed anteriorly and provided at its slightly rounded base with a transverse impressed line which narrows it posteriorly. Behind this line the base shows a small straight impression which is

bordered by two raised edges. Scutellum transversely triangular, inclined anteriorly.

Elytra depressed between the shoulders and transversely towards the anterior fourth, emarginated and provided with a raised border round the scutellum, and with a smooth and elongated callosity at the base of the interstice between the first and second striae. The shoulders raised. The elytra show deep striae; those of the disk provided towards the base with large irregular and more or less transverse punctures which obliterate gradually towards the apex of the elytra. The lateral striae have large elongate ovate punctures towards the base, which become confluent posteriorly and disappear towards the apex of the elytra. The interstices between the striae of the disk are wide and unequal, those of the sides narrow and costiform. The interstice between the fourth and fifth striae is bent inward at the base, and shows in this region a narrow and smooth edge.

Under surface glossy, testaceous. Pygidium and femora of the same color. The apex of the anterior femora and the remaining portion of the legs of a darker brownish shade.

Two specimens from Moeara Laboe, captured in October 1877, have been brought home by the Scientific Sumatra-Expedition.

According to Mr. Jekel this species is also found at Singapore, Mount Ophir, Malacca, etc. and varies in the prothorax, the callosities of the elytra, the under surface of the body and the legs being of a more reddish color. — I have in my own collection a specimen labelled as having been captured in Borneo.

2. *Apoderus (Hoplapoderus*, Jekel) *spiniferus*, sp. n.

A. hystricis vicinus; capite prothoraceque rufo-testaceis, hoc rugoso, nigri-trimaculato; antennis nigris; elytris costatis, interstitiis transverse rugatis, dentibus humeralibus

quatuorque dorsalibus armatis; subtus cum pygidio luteis; femoribus concoloribus versus apicem nigro-annulatis, tibiis tarsisque nigrescentibus. — Long. 7 mm. rostr. excl.

Belonging to the same group as *Apoderus hystrix* F.; allied but quite distinct; of a somewhat larger size and broader than this species.

Head and rostrum of a yellowish red, glossy; the head short, globulous, much raised behind the eyes, with a median line which runs along the elevation, and three blackish spots, one on the forehead, the two others above the eyes; sometimes these spots are united into a single band. Rostrum a little raised between the antennae, with a short median line which is impressed at the base; the mandicating apparatus of a darker brown. The antennae black.

Prothorax strongly transverse, rugose, of a reddish yellow with two round black spots towards the base and a similar smaller spot towards the anterior margin. The prothorax is provided with a rather wide median line and with two lateral impressions at the base; the latter has an upturned narrow edge and a little more anteriorly a semicircular transverse line which narrows the prothorax at the sides. Scutellum black, glossy, transversely cordiform, almost perpendicular; its posterior median angle is raised in two points.

Elytra black, not very glossy; their external margin as well as that of the suture showing a smooth edge similar to the four ribs, which may be seen on each elytrum and of which the interior one is slightly bent outward behind the middle where it bears a spine. The second rib is provided with a spine towards the anterior third of the elytrum, whilst the shoulder bears a third spine which is somewhat longer and bent slightly backward. The interstices between the ribs are transversely wrinkled.

Under surface glossy, yellow; metasternum rugose; abdomen superficially punctured; pygidium yellow, finely rugose. Femora smooth, yellow, with a blackish ring to-

wards the apex; tibiae and tarsi brownish, the firsts somewhat rugose. Tibiae of the male unguiculate and moreover provided towards the interior angle of the truncation with a second but shorter tooth [1]). Tibiae of the female only unguiculate.

I do not know if the sexual difference of the tibiae will be found in all the species of Apoderus of this group; it is very distinct in the described species.

A male specimen from the district of Rawas (May 1878) and one specimen of each sex from Koetoer (June 1878) have been brought home by the Scientific Sumatra-Expedition.

Brussels, January 1880.

---

1) This tooth is not identical with the *mucro* of many of the Curculionidae.

NOTE XXXVI.

ON A NEW SPECIES OF THE GENUS ECTATORHINUS, ECTATORHINUS HASSELTI.

BY

W. ROELOFS.

Since the establishment of the genus *Ectatorhinus* by Lacordaire [1]) for a beautiful species of Rhynchophorous beetles discovered in the island of Borneo by the celebrated naturalist R. Wallace, two other species have been described by Mr. F. Pascoe [2]) viz: *E. Adamsi* of Japan and *E. femoratus* of Sarawak (Borneo).

The entomological collections brought home by the Dutch Scientific Expedition to central Sumatra, contain a unique female specimen of a new species of which I possess also a single specimen of the other sex, captured at Malacca by the Comte de Castelneau.

E. Wallacei Lac. which I do not possess, but which I have examined in Mr. Pascoe's collection, is especially distinguished from its congeners by the greater length of its rostrum which reaches at least to three fourths of the length of the body.

E. femoratus Pasc. is provided with a large lateral tubercle on the elytra behind the shoulders; in the other species this tubercle is not present.

1) Lacordaire, *Genera des Coléoptères.* Suites à Buffon. tom. VII (1866), p. 53. (note 1: diagnosis of *Ectatorhinus Wallacei* Lac.).

2) *Journal of the Linnean Society.* Zoology. vol. XI, p. 478; pl. X, fig. 10.

E. Adamsi Pasc. of which my collection contains numerous specimens for which I am indebted to Mr. Lewis's captures in Japan [1]), resembles the new species from Sumatra and Malacca, but can easily be distinguished by its smaller size, and principally by its different sculpture and its more elongated shape.

I have much pleasure in dedicating the new species to Mr. A. L. van Hasselt, commander in chief of the above mentioned Expedition.

Ectatorhinus Hasselti, sp. n.

Oblongo-ovalis, niger, brunneo squamulosus, rostro dimidio corpore minore (♀); prothorace confluente strigato; elytris grosse punctato-striatis, intervallo secundo costiformi; basi luteo bilineato, postice punctis aliquibus concoloribus notatis. — Long. 15—16 mm. rostr. excl.

Oblong-ovate, black, furnished with brown scales varied with others of a blackish brown.

Rostrum arched, angulous, thickened, subcarinated [2]) and scaly at the base, somewhat flattened, glossy and finely punctured from the insertion of the antennae as far as the apex, not quite reaching half the length of the body in the female, shorter and wider in the male.

Antennae furnished with brown scales, the funicle and the club have moreover hairs of the same color.

Head with some large punctures distributed irregularly, and with other smaller punctures spread over the vertex; it is covered with brown scales and provided with three whitish lines; an impressed puncture may be observed between the eyes at the extreme base of the rostrum.

Prothorax a little longer than broad, rounded at the middle of the sides; its posterior angles prominent and pointed; its base bisinuated; it is covered with unequal,

1) I possess also specimens from Juthia.

2) On each side of the median keel there is another lateral one which is shorter and not distinctly marked.

longitudinal, naked and glossy wrinkles or ribs, the interstices of which are furnished with brown scales and a few minute whitish dots on a transverse line; a narrow median keel does not quite reach the base. The anterior margin of the prothorax has a somewhat brighter color than the remaining portion and is provided with a rather coarse punctuation. The scutellum of a rounded triangular shape, brown.

Elytra oblong-ovate, the shoulders oblique, prominent, the apex rounded; they are covered with wide striae, furnished with large, round and somewhat confluent punctures, which gradually tend to become more elongated and finally to disappear posteriorly. The interstices between the striae narrow, those between the second and third, and between the fourth and fifth rows more elevated, especially the first which shows a small crest towards the middle, and an elongated tubercle towards the posterior declivity of the elytrum. The elytra are furnished with brown scales and have a darker spot about the middle of the back; their inclined portion is darker too. They are provided with some whitish bands and minute dots in the following manner: a short line at the base of the interstice between the second and third striae; a ϑC shaped figure on the suture towards the posterior declivity; a minute dot on a small tubercle at the end of the interstice between the fourth and fifth striae, and a minute dot on a similar tubercle between the sixth and seventh striae, a little behind the middle of the elytra. The shoulders smooth and apparently furnished with a wart which is more or less prominent posteriorly.

Under surface of the body covered with pale brown scales, spotted with whitish scales on the three intermediate segments of the abdomen. The metasternum of the ♂ covered on the sides with large punctures, flattened and furnished with a dense brown pubescence on the middle. A similar pubescence covers the basal segments of the abdomen and the posterior coxae. The metasternum of

the ♀ covered with irregular pits and with a smoother area on the middle. Abdomen vaguely punctured, the punctures provided with hairs in both sexes. Legs furnished with whitish circles and rings; the anterior pair longer than the others, especially in the male.

The described female specimen has been captured in June 1877 at Silago.

Brussels, January 1880.

NOTE XXXVII.

DESCRIPTION OF A NEW SPECIES OF THE RHYNCHOPHOROUS GENUS OXYRHYNCHUS.

BY

W. ROELOFS.

Oxyrhynchus suturalis, sp. n.

Elongatus, fuliginosus, opacus, fossulis luteo-pulverosis sparsutus. Sutura alba, prothoracis basi atomis albis adspersa. — Long. 10 mm. rostr. excl.

Of a narrower shape than the other known species of the genus.

Deep black, with inconsiderable gloss, covered with large punctures which are filled with a yellowish powder; the base of the prothorax, the outline of the scutellum and the suture of the elytra furnished with a whitish powder [1]).

Rostrum considerably widened posteriorly, rugose, with a longitudinal impression between the antennae. Head vaguely punctured.

Prothorax comparatively more elongated than in the other species, parallel at the sides posteriorly, bisinuated at the base, covered with deep more or less pentagonal pits which are provided with a powdery substance and have an impressed puncture in the middle. The interstices

1) It is difficult to make out the nature of this white investment which has a grumose appearance and is neither scaly nor hairy.

between the pits are narrow and costiform. The anterior border of the prothorax bears an edge of large punctures. Scutellum of an elongate ovate shape, pointed at the apex; its surface unequal.

The basal margin of the elytra somewhat raised in the middle, and more or less rounded for each of them; the shoulders slightly prominent and rounded, the sides subparallel, narrowing gradually towards the apex. The elytra are narrower than in the other species of the genus *Oxyrhynchus* and covered with rows of pits similar to those of the prothorax, but becoming gradually more elongate and confluent towards the apex. The transverse interstices are raised, confluent, and give to the elytra the appearance of being transversely wrinkled. The longitudinal interstices are alternatively a little more raised than the others, beginning with the interstice between the second and third rows of pits. The first only is evidently so.

The under surface of the body as well as the femora covered with large and shallow punctures, which are similarly furnished as the pits of the upper surface. The tibiae with indistinct grooves. The pygidium finely rugose. The rostrum provided at its under surface with a dense yellow pubescence, which disappears towards the apex.

A single specimen captured at Simawoeng, during the Scientific Sumatra-Expedition, in June 1877.

This species is quite distinct from the other *Oxyrhynchus*, especially by its different coloration, which as far as we know at present is rather unusual in this genus.

Brussels, January 1880.

NOTE XXXVIII.

DESCRIPTION OF A NEW SPECIES OF THE FAMILY ANTHRIBIDAE.

BY

W. ROELOFS.

Xylinades marmoratus [1]), sp. n.

X. Westermanni vicinus et similiter coloratus. Prothorace cum carinis lateralibus duobus, granulis raris sparsis maculisque quinque symetrico dispositis nigro-brunneis; elytris similiter marmoratis; femoribus macula magna, spectabili, nitida, rubro-brunnea notatis. — Long. 17 mm. magnit. variat.

Allied to *X. Westermanni* Schönh. but distinguished from that species especially by the double keel on the sides of the prothorax.

Color reddish brown, covered with a dense yellowish pubescence, marmorated with blackish brown velvety spots, and carrying very short, pale, sleek and hardly visible

---

1) Under this name there are two female individuals of this species in the collection of Dejean; the name, I believe, is moreover mentioned in his Catalogue. Mr. Jekel knows the species to exist in several collections under the name of *X. Garnoti* (Dejean in litt.). Weber has described (*Observ. Entom.* 1801. p. 92) a *Xylinades* from Sumatra under the name of *Nodicornis*; his description is however so incomplete that it is impossible to find out whether it is like the present species or not; however, judging from certain characteristics, it seems probable that this is a distinct species.

hairs on the prothorax and especially towards the extremity of the elytra.

Rostrum somewhat longer and more narrowed between the insertion of the antennae than in the allied species, slightly and transversely depressed at the base, and provided with three deep longitudinal impressions, continued on the forehead; the median impression widens out superiorly and inferiorly, and there surrounds a very short and naked keel; the naked keel of the inferior widening is attached to the upturned front margin which surrounds the terminal notch. The lateral impressions of the rostrum approach each other towards the middle and are here sometimes interrupted.

Antennae still more robust than in *X. Westermanni* and having the basal joints shorter; the two apical joints of the club are velvety.

The head naked on the vertex and behind the eyes, very finely chagrined.

Prothorax more long than broad, gradually widening out on the sides of the base up to the anterior third where it is widest. Its base with a narrow upturned edge and a little more forward with a short keel which is sometimes interrupted in the middle and does not reach to the posterior angles. The sides of the prothorax provided with two keels somewhat bent inward at the base, the inferior of which is somewhat directed upward at the anterior angle. The disk has two small impressed lines on the sides of its anterior portion and a small number of shining granulations towards the middle. Dark spots form a regular figure on the middle of the prothorax, one spot being in the centre and surrounded by four others, two of which are attached to the front margin, two others to the base. The space between the lateral keels and the anterior angle are also of a dark color. The sides of the prothorax are covered with large punctures. Scutellum hardly visible.

Elytra of the same shape as those of *X. Westermanni*,

but with much finer and very indistinct striae. Rows of shining granulations are situated on a rudimentary stria by the side of the scutellum and on the first stria which runs along the suture. The following striae only have a few granulations at the base. The pubescence of the elytra is of an equal yellowish color on which dark patches are visible greatly varying according to the individuals. A large patch is always present close to the suture a little behind the middle and sometimes sends out a branch which unites it to another spot on the lateral margin of the elytra. This lateral spot is preceded by two others and followed by one or two smaller spots towards the extremity of the elytra. Along the suture the spots are rather regularly square and the remaining portion of the surface of the elytra is strewn with irregular dots.

Under surface smooth, the sides of the abdomen with a large dark spot at the base of the segments.

Legs clothed in the same manner as the body. Femora with a large smooth and glossy very conspicuous brownish-red space at the base.

A single female specimen was captured in the district of Rawas (Sumatra), during the Scientific Sumatra-Expedition, in May 1878. Others from Java are in my possession.

Obs. The double keel of the prothorax is the most striking characteristic of the species.

Brussels, January 1880.

Note. In the Collections of the Leyden Museum there are specimens of this species from Java and Borneo, formerly placed in the genus *Dasycorynus* Lac., with the manuscript specific name of *Laevithorax* v. Voll. C. R. Cz.

NOTE XXXIX.

ON TWO NEW SPECIES OF THE GENUS LOMAPTERA FROM THE TIMOR GROUP.

BY

C. RITSEMA Cz.

---

1. *Lomaptera tristis*, sp. n. ♀.

Length (from the anterior margin of the pronotum down to the apex of the elytra) 18 mm.; breadth at the shoulders 9 mm. — Entirely of a coal-black color; the upper surface subshining, the under surface shining.

The head rather densely covered with deep punctures of different size; the lobes of the clypeus longitudinally impressed, and, besides being punctured, provided with very fine longitudinal scratches in the sunken portion.

The pronotum diffusedly covered with very fine punctures on the middle of the disk, on the median lobe and along the basal margin; towards the anterior margin and the sides of the disk they become deeper and larger, and there is a group of large punctures on each side of the base of the median lobe a little before the hind margin of the pronotum. The sides of the pronotum rugose by deep striae which are more or less parallel to the lateral margin, commencing a little before the hind margin and extending up to the anterior one; the apex of the median lobe rounded; the scutellum of an elongate triangular shape.

The elytra at the base hardly broader than the base of the thorax, narrowing towards the apex where they are narrowly notched and pointed at the suture. The shoulders and apical tubercles smooth, the latter with only a few punctures. A faint costa, bordered on the basal half of the elytra by rows of short transverse striae, is situated at a distance of one third of the width of the elytra from the suture; the space between this costa and the suture is diffusedly covered with transverse punctures on the basal half of the elytra; behind the middle the punctures become confluent, thus forming slightly oblique striae; between the costa and the lateral margin the elytra are densely and transversely striated; between the apical tubercle and the suture the striae are directed obliquely. Along the basal half of the suture and the median thoracical lobe there is a row of deeply impressed irregular punctures on the elytra. Pygidium concealed under the elytra, obtuse, strongly transverse; its whole surface transversely and concentrically aciculated.

The pro - and metasternum longitudinally striated; the mesosternum irregularly striated, the striae intermixed with punctures, its middle as well as the sternal process smooth, with a slightly impressed longitudinal median line; the sternal process narrow, elongate, slightly curved upward towards the apex. The abdomen shallowly punctured; on the middle the punctures are very fine, on the sides they are larger and more or less semicircular; on the last ventral segment the punctures are large and deep. The femora are transversely, the tibiae more or less longitudinally striated; the striae on the latter intermixed with large punctures; the anterior tibiae with three lateral distinct teeth, the first of which is very small and placed in the middle of the outer margin; the intermediate and posterior tibiae longitudinally excavated on the inside, provided on the outside of their apical portion with a distinct notch, forming, especially on the posterior pair, a small blunt tooth about one third from the apex, and ter-

minated on the outside by three teeth at the posterior and by two teeth at the intermediate pair.

The described female specimen has been captured by Mr. Colffs in the island of Sumbawa and presented to the Leyden Museum by his Excellence J. W. van Lansberge.

This new species seems to be allied to *Lomaptera timoriensis* Wall. [1]) and to *Lomaptera brunneipennis* Thoms. [2]), both from the island of Timor. According to the descriptions of these species which are not represented in the Leyden Museum, it differs from the first by the sculpturing of its upper surface being much more dense, the elytra being moreover not punctate-striate but transversely striate, and from the second by its different shape, being attenuated towards the apex, by the want of the round nodosity on the middle of the head, by the sculpture of the pygidium which is transversely striate all over, etc.

2. *Lomaptera castanea* (v. Voll. in Mus. Lugd. Bat.), sp. n. ♂.

Under this name Mr. Mohnike in his »Uebersicht der Cetoniden der Sunda-Inseln und Molukken" [3]) mentions a Lomaptera in the Leyden Museum, but regards it as a very young specimen of *L. timoriensis* Wall., which has only just developed into the perfect state and in which the deposition of pigment is not yet quite completed.

Since then Mr. Thomson, who possesses the *type* of *L. timoriensis* Wall., has published [4]) some characteristics of this species which were not mentioned by Mr. Wallace, and these have convinced me that the specimen of the Leyden Museum belongs to an undescribed species which may be closely allied to *Lomaptera brunneipennis* Thoms.,

1) *Transactions of the Entomological Society of London.* 3rd ser. vol. IV. p. 535, n°. 2.

2) *Bulletin des séances de la Société Entomologique de France.* 1879, n° 3. p. 31, n°. 1.

3) Troschel's *Archiv für Naturgeschichte.* Jahrg. XXXVII (1871) Bd. I. S. 256.

4) *Bulletin des séances de la Société Entomologique de France.* 1872. n°. 3, p. 31.

but differs however from this species by its smaller size, by the want of the round nodosity on the middle of the head, by the almost impunctate abdomen, and by the sculpture of the pygidium which is transversely striate all over and not punctured on the inferior portion. From *Lomaptera timoriensis* Wall. it differs, besides by its smaller size, by its different shape, the lateral margins of the elytra being parallel and not attenuated towards the apex, and from *Lomaptera tristis* Rits., besides by its smaller size and parallel shape, by its less dense sculpture, the elytra being moreover punctate-striate, etc.

Length (from the anterior margin of the pronotum down to the apex of the elytra) not quite 15 mm.; breadth at the shoulders 8 mm.

Glossy black; the elytra, a narrow transverse and subdivided band on the base of the pygidium, and a spot on the middle of the second, third and fourth ventral segments of a chestnut color.

The head sparingly covered with punctures of different size; the longitudinal impressions of the lobes of the clypeus furnished moreover with longitudinal striae.

The pronotum sparingly covered with almost imperceptible punctures on the middle of the disk, on the median lobe and along the basal margin; towards the sides of the disk the punctures become deep and large. The sides of the pronotum, especially towards and on the anterior angles, rugose by confluent deep punctures forming short striae; the apex of the median lobe rounded. The scutellum of an elongate triangular shape.

The elytra at the base distinctly broader than the base of the prothorax; their lateral margins parallel, narrowly notched and pointed at the suture. The shoulders and apical tubercles smooth, the disk irregularly punctate-striate; the punctures tend however to disappear almost entirely towards the suture on the basal half and towards the apical tubercle. Moreover there is a row of punctures on the elytra along the suture and the median thoracical

lobe. Behind the middle of the elytra the punctures become transversely confluent on the sides, thus forming short transverse striae; between the apical tubercle and the suture the striae are directed obliquely. Pygidium obtuse, transverse, concealed under the elytra; its whole surface transversely and concentrically aciculated.

The pro- and metasternum longitudinally striated, the latter almost smooth on the sides; the mesosternum transversely striated, with some large and deep punctures towards the middle, which as well as the sternal process is smooth and provided with a slightly impressed longitudinal median line. The sternal process narrow, elongate and slightly curved upward towards the apex. The abdomen longitudinally impressed on the middle, the impressed portion impunctate, but round about this the ventral segments show a few irregular punctures and scratches. The femora are transversely striated. The anterior tibiae longitudinally striated, their outer margin bisinuated, only the apical tooth being distinct. The intermediate and posterior tibiae partially striated and provided with some large punctures, longitudinally excavated on the inside, provided on the outside of their apical portion with a notch which forms on the posterior pair a short but stout tooth about one third from the apex, and terminated on the outside by three teeth at the posterior and by two teeth at the intermediate pair.

Hab. Timor (Macklot).

Both species here described have the distinguishing characters of the four hind tibiae as well as some other points in common with *Lomaptera striata* Wall., *Mohnikii* Thoms. and *Pulla* Billb., and most probably also with *Timoriensis* Wall., *Brunneipennis* Thoms., *Luctuosa* Thoms., *Higginsii* Jans., *Cupripes* Waterh. and *Agni* Wall.

Leyden Museum, September 1880.

NOTE XL.

DESCRIPTION OF A SUMATRAN SPECIES OF THE LONGICORN GENUS CALLOPLOPHORA, THOMS. [1])

BY

C. RITSEMA Cz.

Calloplophora Graafii, sp. n. ♂ and ♀.

Length of the male 44 mm., of the female 54 mm.; breadth at the shoulders in the male 15,5 mm., in the female 19 mm.

Smooth and shining; black, with the elytra of a beautiful metallic green; the body covered with extremely small scales of a whitish green, forming transverse bands on the elytra and abdominal segments, irregular on the former, widely interrupted on the latter; the antennae annulated and the legs banded with whitish blue.

The head, except the front margin of the clypeus, the space between the inferior margin of the eyes and the base of the mandibles, and the antennary tubers, densely covered with the minute scaly whitish-green pubescence,

1) The new species exactly corresponds to the description of the genus as given by Lacordaire (*Genera des Coléoptères*. Suites à Buffon. Tom. IX. 1re part. p. 361) and which was taken from the only known species *Oplophora Sollii* Hope (*Transactions of the Linnean Society of London*. vol. XVIII (1841) p. 438. Tab. XXX, fig. 4).

which may also be found on the outer surface of the base of the mandibles. The antennae distinctly longer in the male than in the female, especially the apical joint, annulated or subannulated with blue on the middle of the scape and on the basal half of the following joints, gradually decreasing towards the apex of the antennae so that the apical joint is entirely black.

The prothorax and scutellum densely covered with the minute scaly whitish-green pubescence, with the exception of a longitudinal band on the middle which commences just behind the median tubercle and narrows towards the front margin, and of two oblique bands running from behind the lateral tubercles of the disk up to the apex of the lateral spines.

The elytra provided with five irregular more or less interrupted transverse bands of whitish-green minute scales, a border of similar scales along the apical portion of the lateral margins and of the suture and two similar basal spots, one between the shoulder and the lateral margin, the other between the shoulder and the basal prominence of the elytra. The apical segment of the abdomen not entirely covered by the elytra in both sexes, provided with whitish-green minute scales and margined with stiff black hairs; in the male it is rounded, in the female broadly truncated at the apex.

The under surface densely covered with whitish-green minute scales, forming on the abdominal segments transverse bands which are widely interrupted on the middle. The sternal process conically porrected, scaleless, but provided with some erect black hairs. The apical ventral segment broadly truncated at the apex; it is transverse in the male, more elongated and ob-conical in the female; in the male the apical margin is straight, in the female it is slightly emarginate. The anterior surface of the coxae, the femora, a broad ring near the base of the tibiae and the upper surface of the tarsal joints covered with whitish-blue scaly pubescence.

The couple here described was captured at Soerian in January 1878, and belongs to the collections brought home by the Scientific Sumatra-Expedition.

I have much pleasure in dedicating this magnificent insect to my friend Mr. Henri W. de Graaf, who has made some excellent figures of this and other beetles, which will be published in the work on the Expedition which is now in progress, part of it having already appeared.

Leyden Museum, September 1880.

NOTE XLI.

A NEW SPECIES OF THE COLEOPTEROUS GENUS PLATYRHOPALUS FROM JAVA.

DESCRIBED BY

C. RITSEMA Cz.

Platyrhopalus irregularis, sp. n.

Length 7,5 mm. — Dark piceous; the anterior portion of the head, the antennae, the manducating apparatus, and the coxae, trochanters and base of the femora dark castaneous-red; the elytra almost black, with a yellowish irregular band along four fifths of the suture. At the base of the elytra this band occupies the space between the exterior margin of the shoulders and the suture; at one fifth from the base it narrows suddenly and then gradually down to the middle of the length of the elytra, where it is very narrow; behind the middle it again widens out and ceases at one fifth from the apex. The line of demarcation between the black and the yellowish color is very irregular; some (3 or 4) rounded small black spots may be observed on each elytron in the basal half of the yellowish band; they are more or less regularly distributed: two at some distance from the suture, the other near the shoulder.

Head almost without gloss, minutely shagreened, with a fine longitudinal median line which divides a transverse tubercle on the vertex; the anterior portion of the head

flattened, smooth, shining, with slightly raised margins and narrowly emarginated in front. The antennae shining, opaque along the under or front margin of the apical joint of the club which, as well as the basal joint of the club, is minutely punctured. The first joint of the antennae square, somewhat longer than broad; the club subdivided into a short transverse reniform basal joint which is rounded at its front - and obtusely pointed at its hind margin, and into a large apical joint, which is distinctly longer than broad, broadly rounded at the top, strongly gibbous on both sides and has acute margins; along its upper or hind margin this joint is provided with three very distinct transverse impressions which may perhaps be considered as indicating a rudimental articulation; its basal division somewhat protrudes at the hind margin where it turns upward.

The pronotum slightly pubescent, almost without gloss, shagreened, narrowed on the middle of its length where it is provided with an impressed transverse line; the anterior half somewhat broader than the head, rounded at the sides and provided in front of the transverse line with a W-shaped impression; the posterior half of the prothorax narrower than the anterior one, its sides subparallel widening out a little towards the basal margin of the prothorax and provided with a longitudinal median impression.

The elytra at the base broader than the anterior half of the prothorax, deeply emarginated between the shoulders, shining, sparingly covered with almost imperceptible raised punctures which bear a short hair and which are more distinct on the inclined lateral portions. Pygidium, under surface of the body and legs shining, slightly pubescent and inconspicuously punctured.

Hab. Bandong (Preanger-Districts, Java) (Bernelot Moens).

This is the first species of the genus known as inhabiting the Malayan Archipelago.

Leyden Museum, September 1880.

INDEX [1].

1) The index to Mr. Vosmaer's Note XVIII on the Sponges of the Leyden Museum is separately given on page 161.

D.

E.

F.

VOL. I was issued in parts in the following order:

N°. 1 — January 1879, Note I—XVIII.

N°. 2 — April 1879, Note XIX—XXXIII.

N°. 3 — July 1879, Note XXXIV—XLIII.

N°. 4 — October 1879, Note XLIV—XLVI.

LIST OF CONTENTS.

PART IV.—1880.

NOTES

FROM THE

LEYDEN MUSEUM

EDITED

BY

Prof. H. SCHLEGEL
Director of the Museum.

VOL. II.

N°. 4. October 1880.

LEYDEN
E. J. BRILL.

LIST OF CONTENTS.

PART III.—1880.

NOTES

FROM THE

ROYAL ZOOLOGICAL MUSEUM

OF THE NETHERLANDS

AT LEYDEN

EDITED

BY

Prof. H. SCHLEGEL
Director of the Museum.

VOL. II.

N°. 3. July 1880.

LEYDEN
E. J. BRILL.

Publications from E. J. Brill, Leiden.

Archiv (Niederländisches) für Zoologie, herausgegeben von Prof. EMIL SELENKA u. fortgesetzt von Prof. C. K. HOFFMANN. 1871—78.

Band I. Mit 22 Tafeln. Preis *f* 10.—.
" II. Mit 11 Tafeln. " " 7.— .
" III. Mit 19 Tafeln. " " 15.—.
" IV. Mit 13 Tafeln. " " 12.50.

Bouwstoffen voor eene fauna van Nederland, onder medewerking van onderscheidene geleerden en beoefenaars der dierkunde, bijeenverz. door J. A. HERKLOTS. I—III. 1851—66. 8°. . . . . *f* 18.70

Franchimont (Dr. A. P. N.), Leiddraad bij de studie van de Koolstof en hare verbindingen . . . . . *f* 10.—

Heynsius (Dr. A.), Ueber die Ursachen der Töne und Geräusche im Gefässsystem. 1878. . . . . *f* 1.60

Hoeven (J. van der), Recherches sur l'histoire naturelle et l'anatomie des Limules, 1838. fol. (*f* 7.25). . . . . *f* 4.—

——— Philosophia zoologica, 1864. 8°. . . . . - 5.—

——— Ontleed- en dierkundige bijdragen tot de kennis van Menobranchus, den Proteus der meren van Noord-Amerika, met drie platen, 1867. 4°. . . . . *f* 3.—

Moens (A. Isebree), Die Pulscurve, 1878. . . . . - 2.40

Museum d'histoire naturelle des Pays-Bas. Revue méthodique et critique des collections déposées dans cet établissement, par H. SCHLEGEL, livr. 1—12. 1862—76. 8°. . . . . *f* 32.05

Notes from the Royal Zoological Museum of the Netherlands at Leyden, edited by H. SCHLEGEL. Vol. I. 1879. . . . . *f* 5.—

Recherches sur la faune de Madagascar et de ses dépendances, d'après les découvertes de FRANÇOIS P. L. POLLEN et D. C. VAN DAM. I—V. 1868—77. 4°.

Ire Partie: FRANÇOIS P. L. POLLEN, Relation de voyage. Livr. I—V. *f* 37.50
IIme " H. SCHLEGEL et FR. POLLEN, Mammifères et Oiseaux, 1868. . . . . *f* 30.50
IVme " P. BLEEKER et FR. POLLEN, Poissons et pêches. . . . - 18.50
Vme " S. C. SNELLEN VAN VOLLENHOVEN, Baron EDM. DE SÉLYS LONGCHAMPS, C. K. HOFFMANN et J. G. DE MAN, Insectes, Crustacées, Echinodermes et Mollusques . . *f* 15.25

Schlegel (H.), Monographie des Singes 1876 . . . . . *f* 4.75.

——— Oiseaux des Indes Néerlandaises, décrits et figurés. (*f* 34.80) *f* 25.—

RENFERMANT:
Pitta, avec 5 pl. col.
Martin-Pêcheurs, avec 16 pl. col.
Accipitres, avec 28 pl. col.

PRINTED BY E. J. BRILL, LEYDEN.

ERRATUM.

Page 89, foot note, 3 lines from bottom, for »N. E.", read »N. W."

LIST OF CONTENTS.

PART II.—1880.

NOTES

FROM THE

ROYAL ZOOLOGICAL MUSEUM

OF THE NETHERLANDS

AT LEYDEN

EDITED

BY

Prof. H. SCHLEGEL

Director of the Museum.

VOL. II.

N°. 2. April 1880.

LEYDEN

E. J. BRILL.

LIST OF CONTENTS.

PART I.—1880.

NOTES

FROM THE

ROYAL ZOOLOGICAL MUSEUM

OF THE NETHERLANDS

AT LEYDEN

EDITED

BY

Prof. H. SCHLEGEL
Director of the Museum.

VOL. II.

N°. 1. January 1880.

LEYDEN
E. J. BRILL.